

BOCCII INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.07.88
Test oil : ISO 4113

Combination No. : 0 403 446 203

Injection pump
Pump designation : PES6MW100/720RS1163
EP type number : 0 413 406 152

Governor
Governor design. : RQV300...1100MW19
Governor no. : 0 420 083 014

Cust. part No. : 4843739

Customer-spec. information

Customer : IVECO-OM
Motor : 8E65.25.500
Power KW : 132.4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 2.95
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.75
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 97.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Spread

Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

Rated speed rpm : 300
 Rack travel in mm : 8.05
 Tolerance mm : + - 0.05
 Del. quantity
 cm³/1000 strokes : 13.5
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1220
 guide sleeve
 travel mm : 9.80
 Tolerance mm : + - 0.20
 Rated speed rpm : 300
 guide sleeve
 travel mm : 1.20
 Tolerance mm : + - 0.20
 Rated speed rpm : 500
 guide sleeve
 travel mm : 3.00
 Tolerance mm : + - 0.30
 Rated speed rpm : 1140
 guide sleeve
 travel mm : 8.80
 Tolerance mm : + - 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1100
 Rack travel in mm : 16.50

Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 500
 Del. quantity
 cm³/1000 strokes : 97.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 101.0
 tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 1145
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1250
 Tolerance 1/min : + - 15

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.50

Testing:

Rated speed rpm : 300

rack travel mm : 8.05
Tolerance mm : + - 0.05

TORQUE CONTROL
Rated speed rpm : 1100
rack travel mm : 13.75
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 14.65
Tolerance mm : + - 0.05

Rated speed rpm : 850
rack travel mm : 14.40
Tolerance mm : + - 0.10

Rated speed rpm : 1000
rack travel mm : 13.80
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 500
rack travel mm : 14.65
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 13.35
Tolerance mm : + - 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 14.15
Tolerance mm : + - 0.05

Pressure hPa : 200
rack travel mm : 13.65
Tolerance mm : + - 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 230

Check speed 1/min : > 80
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 500
Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 103.0
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 7.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 76.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : + - 1.00
Del. quantity cm³/1000 strokes : 165.0
Tolerance cm³/1000 strokes : + - 5.0
Check tolerance cm³/1000S. : + - 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 8.05
Tolerance mm : + - 0.05
Del. quantity cm³/1000 strokes : 13.5
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 4.5

Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PJMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.89
Test oil : ISO 4113

Combination No. : 0 403 446 237

Injection pump
Pump designation : PES6MW100/320RS1119
: -4
EP type number : 0 413 406 174

Governor
Governor design. : RQV300...1400MW57-3
Governor no. : 0 420 083 199

Cust. part No. :

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 61-FHQ / GC
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.15
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 97.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300
 Rack travel in mm : 6.80
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 18.0
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 4.5
 Spread
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1450
 guide sleeve travel mm : 8.50
 Tolerance mm : + - 0.10

Rated speed rpm : 300
 guide sleeve travel mm : 1.40
 Tolerance mm : + - 0.20

Rated speed rpm : 550
 guide sleeve travel mm : 3.50
 Tolerance mm : + - 0.30

Rated speed rpm : 1600
 guide sleeve travel mm : 9.70
 Tolerance mm : + - 0.20

GUIDE SLEEVE POSITION

control lever position degree : - 1
 Rated speed rpm : 1480

Rack travel in mm : 16.50
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure hPa : 600
 Del. quantity cm³/1000 strokes : 97.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 3.0
 Spread
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 6.0

CONTROL LEVER

control lever position degree : 114.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 10.90
 Rated speed rpm : 1445
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1605
 Tolerance 1/min : + - 15

rack travel mm : 0.55
 Tolerance mm : + - 0.45
 Rated speed rpm : 1725

LOW IDLE

control lever position degree : 66.0
 tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 300
 rack travel mm : 6.80
 Tolerance mm : + - 0.10

rack travel mm : 2.00
 Rated speed rpm : 570
 Tolerance 1/min : + - 30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 600
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 10.45
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 470
rack travel mm : 11.65
Tolerance mm : \pm 0.05
Pressure hPa : 330
rack travel mm : 10.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270
Check speed 1/min : > 80
Check speed 1/min : < 280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.93
Test oil : ISO 4113

Combination No. : 0 403 456 117

Injection pump
Pump designation : PES6MW100/321RS1215
EP type number : 0 413 406 205

Governor
Governor design. : RQV250...1200MW83-2
Governor no. : 0 420 083 216

Cust. part No. : 3-7138

Customer-spec. information

Customer : MAN
Motor : D 0826 LF 04
Power KW : 199.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm3/1000 strokes : 168.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.60

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1250
guide sleeve
travel mm : 10.80
Tolerance mm : + - 0.20

Rated speed rpm : 250
guide sleeve
travel mm : 1.40
Tolerance mm : + - 0.20

Rated speed rpm : 800
guide sleeve
travel mm : 6.00
Tolerance mm : + - 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 3.50
Tolerance mm : + - 0.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 168.5
Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 128.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 12.60
Rated speed rpm : 1255
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : + - 0.10

rack travel mm : 2.00

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.65
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.55
Tolerance mm : + - 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.45
Tolerance mm : + - 0.15

Pressure hPa : 200
rack travel mm : 10.05
Tolerance mm : + - 0.50

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 176.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 169.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : 165.0

Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 78.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 80.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 13.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.60
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 4.5
Spread
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.08.92
Test oil : ISO 4113

Combination No. : 0 403 456 118

Injection pump
Pump designation : PES6MW100/321RS1201
EP type number : 0 413 406 190

Governor
Governor design. : RQV250...1200MW83-3
Governor no. : 0 420 083 280

Cust. part No. : 3-7218

Customer-spec. information

Customer : MAN
Motor : D 0826 LF08
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1-5-3-6-2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 13.25
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 149.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance cm³/1000S. : + 4.0
 Spred _____
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.50
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 18.0
 Tolerance cm³/1000 strokes : + 2.0
 Check tolerance cm³/1000S. : + 4.5
 Spred
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1250
 guide sleeve travel mm : 10.55
 Tolerance mm : + 0.05
 Rated speed rpm : 250
 guide sleeve travel mm : 1.40
 Tolerance mm : + 0.20
 Rated speed rpm : 810
 guide sleeve travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 500
 guide sleeve travel mm : 4.00
 Tolerance mm : + 0.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800

Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 149.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever position degree : 124.0
 tolerance degree : + 4.0
 RATED SPEED
 rack travel mm : 11.80
 Rated speed rpm : 1253
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1335
 Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1400

LOW IDLE

control lever position degree : 74.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 100
 CRT mm min. : > 7.00
 Testing:
 Rated speed rpm : 250
 rack travel mm : 5.50
 Tolerance mm : + 0.10
 Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm	:	800
rack travel mm	:	13.25
Tolerance mm	:	+ - 0.05
Rated speed rpm	:	1200
rack travel mm	:	12.80
Tolerance mm	:	+ - 0.10
Rated speed rpm	:	1000
rack travel mm	:	13.10
Tolerance mm	:	+ - 0.10
Rated speed rpm	:	600
rack travel mm	:	13.25
Tolerance mm	:	+ - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1000
rack travel mm	:	13.25
Tolerance mm	:	+ - 0.05
Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	10.05
Tolerance mm	:	+ - 0.05

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	550
rack travel mm	:	12.05
Tolerance mm	:	+ - 0.15
Pressure hPa	:	155
rack travel mm	:	10.35
Tolerance mm	:	+ - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1000
Rated speed rpm	:	1200
Del. quantity		
cm3/1000 strokes	:	145.0
Tolerance		
cm3/1000 strokes	:	+ - 2.0

Check tolerance		
cm3/1000S.	:	+ - 5.0
Spred		
Tolerance		
cm3/1000 strokes	:	6.0
Check tolerance		
cm3/1000S.	:	9.0

Aneroid pressure		
hPa	:	1000
Rated speed rpm	:	1000
Del. quantity		
cm3/1000 strokes	:	146.0
Tolerance		
cm3/1000 strokes	:	+ - 2.0
Check tolerance		
cm3/1000S.	:	+ - 5.0

Aneroid pressure		
hPa	:	1000
Rated speed rpm	:	600
Del. quantity		
cm3/1000 strokes	:	149.0
Tolerance		
cm3/1000 strokes	:	+ - 2.0
Check tolerance		
cm3/1000S.	:	+ - 5.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	:	75.0
Tolerance		
cm3/1000 strokes	:	+ - 1.0
Check tolerance		
cm3/1000S.	:	+ - 3.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm3/1000 strokes	:	70.0
Tolerance		
cm3/1000 strokes	:	+ - 10.0
Check tolerance		
cm3/1000S.	:	+ - 13.0

LOW IDLE

Rated speed rpm	:	250
-----------------	---	-----

Rack travel in mm : 5.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.92
Test oil : ISO 4113

Combination No. : 0 403 456 124

Injection pump
Pump designation : PES6MW100/321RS1201
EP type number : 0 413 406 190

Governor
Governor design. : RQV250...975/1200MW1
: 28
Governor no. : 0 420 083 288

Cust. part No. : 3-7253

Customer-spec. information

Customer : MAN
Motor : D 0826 LF08
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 12.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spread

Tolerance
 cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 250
 Rack travel in mm : 5.50
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Speed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 2.30
 Tolerance mm : + 0.20
 Rated speed rpm : 1250
 guide sleeve
 travel mm : 11.10
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 9.50
 Tolerance mm : + 0.20
 Rated speed rpm : 650
 guide sleeve
 travel mm : 4.50
 Tolerance mm : + 0.30
 Rated speed rpm : 250
 guide sleeve
 travel mm : 1.30
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1270
 Rack travel in mm : 11.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 142.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Speed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 127.0
 tolerance degree : + 4.0
 RATED SPEED
 rack travel mm : 11.40
 Rated speed rpm : 1253
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1310
 Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1400

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 150

CRT mm min. : > 7.00

Testing:

Rated speed rpm : 250
rack travel mm : 5.50
Tolerance mm : + 0.10

rack travel mm : 2.00

TORQUE CONTROL

Dimension a mm : 0.40
Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 12.80
Tolerance mm : + 0.10

Rated speed rpm : 1000
rack travel mm : 12.60
Tolerance mm : + 0.10

Rated speed rpm : 1200
rack travel mm : 12.50
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.80
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.35
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 550
rack travel mm : 12.35
Tolerance mm : + 0.15

Pressure hPa : 155
rack travel mm : 10.65
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 138.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 5.0
Spread
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 9.0

Aneroid pressure hPa : 1000
Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 139.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 5.0

Aneroid pressure hPa : 1000
Rated speed rpm : 1200
Del. quantity cm³/1000 strokes : 137.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 5.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 75.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 70.0

Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.50
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.92
Test oil : ISO 4113

Combination No. : 0 403 466 131

Injection pump
Pump designation : PES6MW100/120RS1184
EP type number : 0 413 406 171

Governor
Governor design. : RSV375...1250MW2A334
: -1
Governor no. : 0 420 085 207

Cust. part No. : 3281954

Customer-spec. information

Customer : CUMMINS
Motor : 6 BTA 5.9
Power KW : 140.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 111.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 375
 Rack travel in mm : 6.55
 Tolerance mm : + - 0.25
 Del. quantity cm³/1000 strokes : 18.0
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 4.5
 Spread
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : + - 0.35
 governor spring pre-tension click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure hPa : 800
 Del. quantity cm³/1000 strokes : 111.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 3.0
 Spread
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 6.0

CONTROL LEVER

control lever position degree : 114.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 9.30
 Rated speed rpm : 1300
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1380
 Tolerance 1/min : + - 15
 rack travel mm : 1.00
 Tolerance mm : + - 0.70
 Rated speed rpm : 1550
 rack travel mm : 4.00
 Rated speed rpm : 1435
 Tolerance 1/min : + - 15

LOW IDLE

control lever position degree : 84.0
 tolerance degree : + - 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 375
 rack travel mm : 7.05
 Tolerance mm : + - 0.25
 Rated speed rpm : 100
 CRT mm min. : > 19.00

Testing:

Rated speed rpm : 375
 rack travel mm : 6.55
 Tolerance mm : + - 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 800
 rack travel mm : 10.35
 Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.85
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 10.05
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 6.55
Tolerance mm : + 0.25
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spread

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.97
Test oil : ISO 4113

Combination No. : 0 403 466 169AA

Injection pump
Pump designation : PES6MW100/120RS1242
EP type number : 0 413 406 241

Governor
Governor design. : RSV500...1100MW5A385
Governor no. : 0 420 085 270

Cust. part No. : 3284253

Customer-spec. information

Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.10
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

+ governor spring
+ pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1170
Tolerance 1/min : + - 5

rack travel mm : 7.00
Rated speed rpm : 1230
Tolerance 1/min : + - 5

rack travel mm : 1.00
Tolerance mm : + - 0.70
Rated speed rpm : 1350

rack travel mm : 7.00
Rated speed rpm : 1250
Tolerance 1/min : + - 15

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.60
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.10
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.80
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : + 0.20

Rated speed rpm : 1000
rack travel mm : 13.30
Tolerance mm : + 0.20

ANEROID'ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.40
Tolerance mm : + 0.20

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 560
rack travel mm : 13.10
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 126.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 13.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.10
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.01.92
Test oil : ISO 4113

Combination No. : 0 403 476 099

Injection pump
Pump designation : PES6MW100/320RS1209
EP type number : 0 413 406 200

Governor
Governor design. : RSV300...750MW1A802
Governor no. : 0 420 085 113

Cust. part No. : 3-7111

Customer-spec. information

Customer : MAN
Motor : D0826LE20
Power KW : 116.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 681 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.25
Tolerance mm : + 0.65
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 7.00

Tolerance mm : + - 0.40

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : + - 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + - 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 13.50
Rated speed rpm : 750

rack travel mm : 4.00
Rated speed rpm : 801
Tolerance 1/min : + - 4

rack travel mm : 1.00
Tolerance mm : + - 0.70
Rated speed rpm : 950

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 13.50

Rated speed rpm : 301
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + - 0.70
Rated speed rpm : 950

Rated speed rpm : 751
rack travel mm : 13.50

Rated speed rpm : 802
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + - 0.70

Rated speed rpm : 752
rack travel mm : 13.50

Rated speed rpm : 803
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + - 0.70

Rated speed rpm : 753
rack travel mm : 13.50

Rated speed rpm : 804
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + 0.70

Rated speed rpm : 754
rack travel mm : 13.50

Rated speed rpm : 805
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + 0.70

Rated speed rpm : 755
rack travel mm : 13.50

Rated speed rpm : 806
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : + 0.70

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : + 0.40

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : + 30

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 13.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : + 0.40

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance

cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.05.90
Test oil : ISO 4113

Combination No. : 0 403 486 102

Injection pump
Pump designation : PES6MW100/321RS1192
EP type number : 0 413 406 182

Governor
Governor design. : RSV300...1300MW0A902
: -1
Governor no. : 0 420 085 132

Cust. part No. : 3-7016

Customer-spec. information

Customer : MAN
Motor : D0826LE40
Power KW : 199.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + - 0.35

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.0

Spred
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 12.00
Rated speed rpm : 1355
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1475
Tolerance 1/min : + - 15

rack travel mm : 1.00
Tolerance mm : + - 0.70
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : + - 0.10

rack travel mm : 2.00

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : + - 1.5

Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Rack travel mm : 20.00
Tolerance mm : + - 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 4.80
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.11.97
Test oil : ISO 4113

Combination No. : 0 403 548 040

Injection pump
Pump designation : PE8MW100/720LS1117
EP type number : 0 413 508 101

Governor
Governer design. : RQV300...1075MW135
Governer no. : 0 420 083 295

Cust. part No. :

Customer-spec. information

Customer : KHD
Motor : F 8L 513
Power KW : 161.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 740 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.15
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4- 3

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 10.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 91.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Spread

Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

Rack travel in mm : 8.70
 Tolerance mm : + - 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1136
 guide sleeve
 travel mm : 8.94
 Tolerance mm : + - 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.27
 Tolerance mm : + - 0.25

Rated speed rpm : 730
 guide sleeve
 travel mm : 5.08
 Tolerance mm : + - 0.25

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.74
 Tolerance mm : + - 0.25

Rated speed rpm : 375
 guide sleeve
 travel mm : 2.53
 Tolerance mm : + - 0.25

Rated speed rpm : 420
 guide sleeve
 travel mm : 2.94
 Tolerance mm : + - 0.25

Rated speed rpm : 1330
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1

Rated speed rpm : 1180
 Rack travel in mm : 9.80
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 91.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 9.80
 Rated speed rpm : 1100
 Tolerance 1/min : + - 5

rack travel mm : 4.50
 Rated speed rpm : 1175
 Tolerance 1/min : + - 15

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1300

rack travel mm : 4.00

LOW IDLE

control lever
 position degree : 88.0
 tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.20

Testing:

Rated speed rpm : 300
rack travel mm : 8.70
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1075
rack travel mm : 10.85
Tolerance mm : + - 0.05

Rated speed rpm : 650
rack travel mm : 11.50
Tolerance mm : + - 0.10

Rated speed rpm : 900
rack travel mm : 11.40
Tolerance mm : + - 0.10

Rated speed rpm : 1000
rack travel mm : 11.00
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 650
Del. quantity cm3/1000 strokes : 91.0
Tolerance cm3/1000 strokes : + - 1.5
Check tolerance cm3/1000S. : + - 4.0
Spread Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 7.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 13.0

LOW IDLE

Rack travel in mm : 8.70
Tolerance mm : + - 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.11.97
Test oil : ISO 4113

Combination No. : 0 403 548 041

Injection pump
Pump designation : PE8MW100/720LS1128
EP type number : 0 413 508 103

Governor
Governor design. : RQV450...1150MW142
Governor no. : 0 420 083 306

Cust. part No. :

Customer-spec. information

Customer : KHD
Motor : BF 8L 513
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 740 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.15
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4- 3

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 12.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 135.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spread _____

Tolerance
 cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 450

 Rack travel in mm : 5.70
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1176
 guide sleeve
 travel mm : 8.76
 Tolerance mm : + - 0.25

 Rated speed rpm : 450
 guide sleeve
 travel mm : 2.08
 Tolerance mm : + - 0.25

 Rated speed rpm : 1000
 guide sleeve
 travel mm : 6.73
 Tolerance mm : + - 0.25

 Rated speed rpm : 565
 guide sleeve
 travel mm : 3.78
 Tolerance mm : + - 0.25

 Rated speed rpm : 615
 guide sleeve
 travel mm : 4.34
 Tolerance mm : + - 0.25

 Rated speed rpm : 710
 guide sleeve
 travel mm : 4.80
 Tolerance mm : + - 0.25

Rated speed rpm : 1227
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + - 0.25

 Rated speed rpm : 1320
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1150

 Rack travel in mm : 16.50
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1125
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 135.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 121.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 11.10
 Rated speed rpm : 1160
 Tolerance 1/min : + - 5

 rack travel mm : 4.00
 Rated speed rpm : 1210
 Tolerance 1/min : + - 15

 rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 88.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.70
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1125
rack travel mm : 12.05
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 12.05
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 200
Rated speed rpm : < 350

Check
speed 1/min : > 180
Check
speed 1/min : < 370

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.70
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + - 7.0
Check tolerance
cm³/1000S. : + - 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 9 400 085 261

Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058

Governor
Governor design. : RSV350...1250AOC2029
: -3R
Governor no. : 9 420 083 271

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 8.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 50.0

Tolerance
 cm³/1000 strokes : + 0.5

 Check tolerance
 cm³/1000S. : + 2.0

 Spred

 Tolerance
 cm³/1000 strokes : 2.5

 Check tolerance
 cm³/1000S. : 4.0

 Rated speed rpm : 350

 Rack travel in mm : 6.00
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 strokes : + 1.5
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.65
 Tolerance mm : + 0.35

 governor spring
 pre-tension
 click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 50.0

Tolerance
 cm³/1000 strokes : + 0.5
 Check tolerance
 cm³/1000S. : + 2.0
 Spred
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 4.0

CONTROL LEVER

control lever
 position degree : 106.0
 tolerance degree : + 4.0

RATED SPEED
 rack travel mm : 7.20
 Rated speed rpm : 1295
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1335
 Tolerance 1/min : + 15

rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1450

LOW IDLE

control lever
 position degree : 79.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
 rack travel mm : 5.50
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350
 rack travel mm : 6.00
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 510
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 8.25
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 9.85
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 9.25
Tolerance mm : + - 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 51.5
Tolerance
cm3/1000 strokes : + - 1.5
Check tolerance
cm3/1000S. : + - 3.0

Aneroid pressure

hPa : -
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 52.0
Tolerance
cm3/1000 strokes : + - 1.5
Check tolerance
cm3/1000S. : + - 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + - 1.00

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.00
Tolerance mm : + - 0.10

Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 strokes : + - 1.5
Check tolerance
cm3/1000S. : + - 3.5
Spread
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.97
Test oil : ISO 4113

Combination No. : 0 402 736 867AA

Injection pump
Pump designation : PES6P120A120RS7350
EP type number : 0 412 726 921

Governor
Governer design. :
Governer no. :

Cust. part No. : 3933298

Customer-spec. information

Customer : CDC
Motor : 6BTA-A
Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 12.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 5.75
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 167.5

Tolerance	cm ³ /1000 strokes	: + -	1.0
Check tolerance	cm ³ /1000S.	: + -	4.0
Spred			
Tolerance	cm ³ /1000 strokes	:	8.0
Check tolerance	cm ³ /1000S.	:	12.0
Rated speed rpm	:	420	
Rack travel in mm	:	6.10	
Tolerance mm	: + -	0.20	
Del. quantity	cm ³ /1000 strokes	:	13.0
Tolerance	cm ³ /1000 strokes	: + -	3.0
Check tolerance	cm ³ /1000S.	: + -	5.0
Spred			
Tolerance	cm ³ /1000 strokes	:	4.0
Check tolerance	cm ³ /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP			
Rated speed rpm	:	1150	
Aneroid pressure	hPa	:	800
Del. quantity	cm ³ /1000 strokes	:	167.5
Tolerance	cm ³ /1000 strokes	: + -	1.0
Check tolerance	cm ³ /1000S.	: + -	4.0
Spred			
Tolerance	cm ³ /1000 strokes	:	8.0
Check tolerance	cm ³ /1000S.	:	12.0

CONTROL LEVER

control lever	position degree	:	118.0
	tolerance degree	: + -	6.0
RATED SPEED			
rack travel mm	:	13.00	
Rated speed rpm	:	1300	
Tolerance 1/min	: + -	15	
Check	speed 1/min	: + -	20
rack travel mm	:	4.00	
Rated speed rpm	:	1465	
Tolerance 1/min	: + -	5	
Check	speed 1/min	: + -	10
rack travel mm	:	0.50	
Tolerance mm	: + -	0.50	
Rated speed rpm	:	1550	

LOW IDLE

control lever	position degree	:	72.0
	tolerance degree	: + -	6.0
Control lever difference			
Grad	:	46.0	
tolerance degree	: + -	6.0	
Setting point w/out bumper spring			

Rated speed rpm	:	300	
CRT mm min.	: >	8.90	

Testing:

Rated speed rpm	:	420	
rack travel mm	:	6.10	
Tolerance mm	: + -	0.20	

Rated speed rpm	:	420	
-----------------	---	-----	--

TORQUE CONTROL			
Rated speed rpm	:	1150	
rack travel mm	:	14.00	
Tolerance mm	: + -	0.05	

Rated speed rpm	:	800	
rack travel mm	:	12.60	
Tolerance mm	: + -	0.20	

Rated speed rpm : 1250
rack travel mm : 14.00
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 800

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 9.75
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 470
rack travel mm : 12.85
Tolerance mm : + - 0.30

Pressure hPa : 250
rack travel mm : 10.85
Tolerance mm : + - 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 325

Check speed 1/min : > 80
Check speed 1/min : < 335

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 141.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 80.5
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.75
Tolerance mm : + - 0.50
Del. quantity
cm3/1000 strokes : 155.0
Tolerance
cm3/1000 strokes : + - 20.0
Check tolerance
cm3/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.10
Tolerance mm : + - 0.20
Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.07.96
Test oil : ISO 4113

Combination No. : 0 402 736 906

Injection pump
Pump designation : PES6P120A120RS7416
EP type number : 0 412 726 959

Governor
Governor design. : RQV400...1250PA1060
: -4K
Governor no. : 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information

Customer : CDC
Motor : 6BTA-A
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 6.25
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 160.5
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

 Rated speed rpm : 420
 Rack travel in mm : 6.00
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329
 guide sleeve
 travel mm : 7.83
 Tolerance mm : + - 0.15
 Rated speed rpm : 400
 guide sleeve
 travel mm : 1.44
 Tolerance mm : + - 0.20
 Rated speed rpm : 939
 guide sleeve
 travel mm : 5.18
 Tolerance mm : + - 0.25
 Rated speed rpm : 640
 guide sleeve
 travel mm : 3.56

Tolerance mm : + - 0.25
 Rated speed rpm : 1690
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : VH
 Rated speed rpm : 1390
 Rack travel in mm : 12.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 160.5
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 117.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 12.60
 Rated speed rpm : 1325
 Tolerance 1/min : + - 15

rack travel mm : 4.00
 Rated speed rpm : 1475
 Tolerance 1/min : + - 5

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 46.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 375
rack travel mm : 12.70
Tolerance mm : \pm 0.30

Pressure hPa : 260
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 280

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 131.5
Tolerance cm³/1000 strokes : \pm 3.0
Check tolerance cm³/1000S. : \pm 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 1250
Del. quantity cm³/1000 strokes : 107.5
Tolerance cm³/1000 strokes : \pm 1.0
Check tolerance cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : \pm 0.50
Del. quantity cm³/1000 strokes : 155.0
Tolerance cm³/1000 strokes : \pm 20.0

Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.97
Test oil : ISO 4113

Combination No. : 0 402 736 906AA

Injection pump
Pump designation : PES6P120A120RS7416
EP type number : 0 412 726 959

Governor
Governor design. :
Governor no. :

Cust. part No. : 3933297

Customer-spec. information

Customer : CDC
Motor : 6BTA-A
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 6.25
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 5.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : VH

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 800

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 117.0

tolerance degree : + - 6.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1325

Tolerance 1/min : + - 15

rack travel mm : 4.00

Rated speed rpm : 1480

Tolerance 1/min : + - 5

rack travel mm : 0.50

Tolerance mm : + - 0.50

Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 71.0

tolerance degree : + - 6.0

Control lever difference

Grad : 46.0

tolerance degree : + - 6.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420

rack travel mm : 6.00

Tolerance mm : + - 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.65

Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 11.85
Tolerance mm : + - 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : + - 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 800

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 340
rack travel mm : 12.70
Tolerance mm : + - 0.30

Pressure hPa : 180
rack travel mm : 10.50
Tolerance mm : + - 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 280

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 800
Rated speed rpm : 800
Del. quantity cm3/1000 strokes : 131.5
Tolerance cm3/1000 strokes : + - 3.0
Check tolerance cm3/1000S. : + - 6.0
Spread

Tolerance cm3/1000 strokes : 8.0
Check tolerance cm3/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 88.0
Tolerance cm3/1000 strokes : + - 1.0
Check tolerance cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : + - 0.50
Del. quantity cm3/1000 strokes : 155.0
Tolerance cm3/1000 strokes : + - 20.0
Check tolerance cm3/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 420
Rack travel in mm : 6.00
Tolerance mm : + - 0.10
Del. quantity cm3/1000 strokes : 15.0
Tolerance cm3/1000 strokes : + - 3.0
Check tolerance cm3/1000S. : + - 5.0
Spread
Tolerance cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Not remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 400 074 871

Injection pump
Pump designation : PES4M55C320RS192
EP type number : 0 410 054 932

Governor
Governor design. : RSF360/1900M89
Governor no. : 0 420 021 294

Cust. part No. :

CUSTOMER-SPEC. INFORMATION

Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 1.75
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 21.00
Tolerance mm : + 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

START OF DELIVERY BLOCKING

*NW after s.o.d. : 16.50
Tolerance : + 0.20
Check
tolerance *NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.65
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 64.1

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000s. : + 1.5

Spread

Tolerance : +
 cm3/1000 strokes : 2.5
 Check tolerance : 3.0
 Rated speed rpm : 360
 Rack travel in mm : 5.35
 Tolerance mm : + 0.10
 Del. quantity
 cm3/1000 strokes : 6.5
 Tolerance
 cm3/1000 strokes : + 0.5
 Spread
 Tolerance
 cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.00
 Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Ref. pressure
 ALDA / ADA hPa : 1900
 Del. quantity
 cm3/1000 strokes : 64.1
 Tolerance
 cm3/1000 strokes : + 0.5
 Check tolerance
 cm3/1000S. : + 1.5
 Spread
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

RATED SPEED

control lever
 position degree : 50.0
 Rated speed rpm : 2200
 rack travel mm : 9.35
 Tolerance mm : + 0.20
 Rated speed rpm : 2700
 rack travel mm : 0.50

Tolerance mm : + 0.60

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900
 CRT mm max. : 1.85

LOW IDLE

control lever
 position degree : 8.0
 tolerance degree : + 2.0

Setting point w/out bumper spring
 Rated speed rpm : 360
 rack travel mm : 5.35

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
 rack travel mm : 3.50
 Tolerance mm : + 0.10

Load pick-up

Rated speed rpm : 150
 rack travel mm : 11.50

Rated speed rpm : 900

CRT mm max. : 1.85
 rack travel mm : 5.35
 Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 14.65
 Tolerance mm : + 0.05

Rated speed rpm : 1500
 rack travel mm : 13.80
 Tolerance mm : + 0.10

Rated speed rpm : 1900
 rack travel mm : 13.20
 Tolerance mm : + 0.15

Rated speed rpm : 900
 rack travel mm : 11.05
 Tolerance mm : + 0.10

ADJUSTMENT TEST ADA/ALDA**SETTING**

Rated speed rpm : 900
Ref. pressure ALDA / ADA hPa : 1650
rack travel mm : -0.50
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 900
Ref. pressure ALDA / ADA hPa : 1100
rack travel mm : -3.60
Tolerance mm : + - 0.10

Ref. pressure ALDA / ADA hPa : 750
rack travel mm : -5.40
Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure ALDA / ADA hPa : 1900
Rated speed rpm : 1500
Del. quantity cm³/1000 strokes : 61.4
Tolerance cm³/1000 strokes : + - 0.8
Check tolerance cm³/1000S. : + - 1.8
Spread
Tolerance cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0

Ref. pressure ALDA / ADA hPa : 1900
Rated speed rpm : 1900
Spread
Del. quantity cm³/1000 strokes : 58.6
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 2.0
Spread
Tolerance cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0

Ref. pressure ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity cm³/1000 strokes : 43.5
Tolerance cm³/1000 strokes : + - 0.5
Check tolerance cm³/1000S. : + - 1.5
Spread
Tolerance cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0

Ref. pressure ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity cm³/1000 strokes : 43.5
Tolerance cm³/1000 strokes : + - 0.5
Check tolerance cm³/1000S. : + - 1.5
Spread
Tolerance cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure ALDA / ADA hPa : 1900
Rated speed rpm : 2200
rack travel mm : 9.35
Tolerance mm : + - 0.20
Del. quantity cm³/1000 strokes : 38.9
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 3.0
Spread
Tolerance cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : + - 1.50
Del. quantity cm³/1000 strokes : 64.3

Tolerance
cm³/1000 strokes : + 6.0
Check tolerance
cm³/1000S. : + 7.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 360
rack travel mm : 5.35
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : + 2.3
Spread
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 42.00

control lever
position degree : < 39.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 8.0
tolerance degree : + 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Rated speed rpm : 360
Rack travel in mm : 11.70
Tolerance mm : + 0.70
Current A : 1.80
Rated speed rpm : 2700

Rack travel in mm : 0.50
Tolerance mm : + 0.60
Current short-
duration A : 3.00
Starting test
Rated speed rpm : 100
Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR

POSITION
Test with KDEP-P400
TESTING
Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1900
Set quantity with
control lever
cm³/1000 strokes : 24.9
Tolerance
cm³/1000 strokes : + 0.5
Voltage Volt : 1.636
Tolerance Volt : + 0.003
Check tolerance
Volt : + 0.001
ADJUSTMENT
Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1900
Rack travel in mm
Voltage Volt : 2.615
Tolerance Volt : + 0.045
Check tolerance
Volt : + 0.060

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 400 074 872

Injection pump
Pump designation : PES4M55C320RS192
EP type number : 0 410 054 932

Governor
Governor design. : RSF360/1900M90
Governor no. : 0 420 021 295

Cust. part No. :

Customer-spec. information

Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 1.75
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 21.00
Tolerance mm : + 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 16.50
Tolerance : + 0.20
Check
tolerance *NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.65
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 64.1

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000s. : + 1.5

Spread

Tolerance
 cm³/1000 strokes : 2.5

Check tolerance
 cm³/1000S. : 3.0

Rated speed rpm : 360

Rack travel in mm : 5.35
 Tolerance mm : + 0.10

Del. quantity
 cm³/1000 strokes : 6.5
 Tolerance
 cm³/1000 strokes : + 0.5

Spread
 Tolerance
 cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.00
 Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Ref. pressure
 ALDA / ADA hPa : 1900
 Del. quantity
 cm³/1000 strokes : 64.1
 Tolerance
 cm³/1000 strokes : + 0.5
 Check tolerance
 cm³/1000S. : + 1.5
 Spread
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

RATED SPEED

control lever
 position degree : 50.0

Rated speed rpm : 2200
 rack travel mm : 9.35
 Tolerance mm : + 0.20

Rated speed rpm : 2700
 rack travel mm : 0.50

Tolerance mm : + 0.60

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900
 CRT mm max. : 1.85

LOW IDLE

control lever
 position degree : 8.0
 tolerance degree : + 2.0

Setting point w/out bumper spring
 Rated speed rpm : 360
 rack travel mm : 5.35

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
 rack travel mm : 3.50
 Tolerance mm : + 0.10

Load pick-up

Rated speed rpm : 150
 rack travel mm : 11.50

Rated speed rpm : 900
 CRT mm max. : 1.85
 rack travel mm : 5.35
 Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 14.65
 Tolerance mm : + 0.05

Rated speed rpm : 1500
 rack travel mm : 13.80
 Tolerance mm : + 0.10

Rated speed rpm : 1900
 rack travel mm : 13.30
 Tolerance mm : + 0.15

Rated speed rpm : 500
 rack travel mm : 16.10
 Tolerance mm : + 0.40

Rated speed rpm : 900

rack travel mm : 11.05
 Tolerance mm : + - 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
 Ref. pressure ALDA / ADA hPa : 1650
 rack travel mm : -0.50
 Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 900
 Ref. pressure ALDA / ADA hPa : 1100
 rack travel mm : -3.60
 Tolerance mm : + - 0.10

Ref. pressure ALDA / ADA hPa : 750
 rack travel mm : -5.40
 Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure ALDA / ADA hPa : 1900
 Rated speed rpm : 1500
 Del. quantity cm³/1000 strokes : 61.1
 Tolerance cm³/1000 strokes : + - 0.8
 Check tolerance cm³/1000S. : + - 1.8
 Spread
 Tolerance cm³/1000 strokes : 2.5
 Check tolerance cm³/1000S. : 3.0

Ref. pressure ALDA / ADA hPa : 1900
 Rated speed rpm : 1900
 Spread
 Del. quantity cm³/1000 strokes : 58.6
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 2.0
 Spread
 Tolerance cm³/1000 strokes : 2.5

Check tolerance cm³/1000S. : 3.0

Ref. pressure ALDA / ADA hPa : 1100
 Rated speed rpm : 900
 Del. quantity cm³/1000 strokes : 43.5
 Tolerance cm³/1000 strokes : + - 0.5
 Check tolerance cm³/1000S. : + - 1.5
 Spread
 Tolerance cm³/1000 strokes : 2.5
 Check tolerance cm³/1000S. : 3.0

Ref. pressure ALDA / ADA hPa : 1900
 Rated speed rpm : 500
 Del. quantity cm³/1000 strokes : 67.1
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 3.0

Ref. pressure ALDA / ADA hPa : 1100
 Rated speed rpm : 900
 Del. quantity cm³/1000 strokes : 43.5
 Tolerance cm³/1000 strokes : + - 0.5
 Check tolerance cm³/1000S. : + - 1.5
 Spread
 Tolerance cm³/1000 strokes : 2.5
 Check tolerance cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure ALDA / ADA hPa : 1900
 Rated speed rpm : 2200
 rack travel mm : 9.35
 Tolerance mm : + - 0.20
 Del. quantity cm³/1000 strokes : 38.9
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 3.0
 Spread

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : + - 1.50
Del. quantity
cm³/1000 strokes : 64.3
Tolerance
cm³/1000 strokes : + - 6.0
Check tolerance
cm³/1000S. : + - 7.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 360
rack travel mm : 5.35
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : + - 2.3
Spread
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 8.0
tolerance degree : + - 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Rated speed rpm : 360
Rack travel in mm : 11.70
Tolerance mm : + - 0.70
Current A : 1.80

Rated speed rpm : 2700
Rack travel in mm : 0.50
Tolerance mm : + - 0.60

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Test with KDEP-P400

TESTING
Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1900
Set quantity with
control lever
cm³/1000 strokes : 24.9
Tolerance
cm³/1000 strokes : + - 0.5
Voltage Volt : 1.636
Tolerance Volt : + - 0.003
Check tolerance
Volt : + - 0.001
ADJUSTMENT
Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1900
Rack travel in mm
Voltage Volt : 2.615
Tolerance Volt : + - 0.045
Check tolerance
Volt : + - 0.060

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.11.97
Test oil : ISO 4113

Combination No. : 0 401 846 843

Injection pump
Pump designation : PE6P120A720RS3069
EP type number : 0 411 826 712

Governor
Governor design. : RQV300...1000PA501
: -4
Governor no. : 0 421 813 609

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8210.22.371

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Spread

Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 300
 Rack travel in mm : 6.20
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000
 guide sleeve
 travel mm : 8.10
 Tolerance mm : + - 0.15
 Rated speed rpm : 325
 guide sleeve
 travel mm : 1.70
 Tolerance mm : + - 0.20
 Rated speed rpm : 450
 guide sleeve
 travel mm : 3.10
 Tolerance mm : + - 0.20
 Rated speed rpm : 800
 guide sleeve
 travel mm : 5.90
 Tolerance mm : + - 0.20
 Rated speed rpm : 1300
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 206.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 11.50
 Rated speed rpm : 1045
 Tolerance 1/min : + - 5
 Check
 speed 1/min : + - 10

rack travel mm : 4.00
 Rated speed rpm : 1145
 Tolerance 1/min : + - 15
 Check
 speed 1/min : + - 20
 rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 67.0
 tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.70

Testing:

Rated speed rpm : 300
 rack travel mm : 6.20
 Tolerance mm : + - 0.10

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.55
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 12.60
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.55
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.80
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 230
rack travel mm : 10.85
Tolerance mm : + - 0.15

Pressure hPa : 280
rack travel mm : 11.85
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.20
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 401 848 828

Injection pump
Pump designation : PE8P120A520/4LS3850
EP type number : 0 411 828 723

Governor
Governor design. : RQ300/900PA1230
Governor no. : 0 421 801 792

Cust. part No. :

Customer-spec. information

Customer : DHI
Motor : D2848LE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.20
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 215.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spread

 Tolerance
 cm³/1000 strokes : 6.0

 Check tolerance
 cm³/1000S. : 10.0

 Rated speed rpm : 300

 Rack travel in mm : 7.40
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 42.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 932
 guide sleeve
 travel mm : 6.37
 Tolerance mm : + 0.10

 Rated speed rpm : 300
 guide sleeve
 travel mm : 1.44
 Tolerance mm : + 0.10

 Rated speed rpm : 880
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 433
 guide sleeve
 travel mm : 4.94
 Tolerance mm : + 0.10

 Rated speed rpm : 510

guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 1050
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : 109
 Rated speed rpm : 600

 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 215.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

CONTROL LEVER

control lever
 position degree : 32.0
 tolerance degree : + 4.0

 control lever
 position degree : 94.0
 tolerance degree : + 4.0

RATED SPEED
 rack travel mm : 11.20
 Rated speed rpm : 905
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 950
 Tolerance 1/min : + 15

 rack travel mm : 0.50

Tolerance mm : + - 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + - 4.0

control lever
position degree : 13.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 9.80

Testing:

Rated speed rpm : 300
rack travel mm : 7.40
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 420
Tolerance 1/min : + - 20

TORQUE CONTROL
Rated speed rpm : 850
rack travel mm : 12.20
Tolerance mm : + - 0.05

Rated speed rpm : 650
rack travel mm : 12.20
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 650
Del. quantity cm3/1000 strokes : 218.0
Tolerance cm3/1000 strokes : + - 3.0
Check tolerance cm3/1000S. : + - 6.0

STARTING FUEL DELIVERY

Del. quantity cm3/1000 strokes : 190.0
Tolerance cm3/1000 strokes : + - 20.0
Check tolerance cm3/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.40
Tolerance mm : + - 0.10
Del. quantity cm3/1000 strokes : 42.0
Tolerance cm3/1000 strokes : + - 3.0
Check tolerance cm3/1000S. : + - 6.0
Spread
Tolerance cm3/1000 strokes : 6.0
Check tolerance cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.97
Test oil : ISO 4113

Combination No. : 0 401 849 715

Injection pump
Pump designation : PE10P120A520/4LS3830
EP type number : 0 411 829 704

Governor
Governor design. : RQV250...1150PA668
: -7
Governor no. : 0 421 813 481

Cust. part No. :

Customer-spec. information

Customer : MAN
Motor : D2840LE
Power KW : 463.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 10- 9- 4- 1- 8
: - 7- 6- 3- 5
: - 2

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.10
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1215

guide sleeve
travel mm : 9.00

Tolerance mm : + - 0.15

Rated speed rpm : 250

guide sleeve
travel mm : 1.05

Tolerance mm : + - 0.20

Rated speed rpm : 610

guide sleeve
travel mm : 5.50

Tolerance mm : + - 0.25

Rated speed rpm : 1590

guide sleeve
travel mm : 11.50

Tolerance mm : + - 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0

tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 11.20

Rated speed rpm : 1195

Tolerance 1/min : + - 5

rack travel mm : 4.00

Rated speed rpm : 1330

Tolerance 1/min : + - 15

rack travel mm : 0.50

Tolerance mm : + - 0.50

Rated speed rpm : 1450

LOW IDLE

control lever

position degree : 68.0

tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.60

Testing:

Rated speed rpm : 250

rack travel mm : 7.10

Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 12.25

Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 200

Check speed 1/min : > 80
Check speed 1/min : < 220

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + - 0.75
Del. quantity cm³/1000 strokes : 200.0
Tolerance cm³/1000 strokes : + - 10.0
Check tolerance cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.10
Tolerance mm : + - 0.10
Del. quantity cm³/1000 strokes : 20.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Speed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 044 700

Injection pump
Pump designation : PES4P110A320RS3350
EP type number : 0 412 014 700

Governor
Governor design. : RQV350...1400PA1221K
Governor no. : 0 421 815 472

Cust. part No. : 16700-D8703 / M
: -2004

CUSTOMER-SPEC. INFORMATION

Customer : NMI
Motor : B4.40 EURO II
Power KW : 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : 180.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 15.40
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 178.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 350
 Rack travel in mm : 9.40
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 31.0
 Tolerance
 cm³/1000 strokes : + - 2.5
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1417
 guide sleeve
 travel mm : 9.99
 Tolerance mm : + - 0.15
 Rated speed rpm : 350
 guide sleeve
 travel mm : 1.46
 Tolerance mm : + - 0.20
 Rated speed rpm : 994
 guide sleeve
 travel mm : 6.77
 Tolerance mm : + - 0.25
 Rated speed rpm : 610
 guide sleeve
 travel mm : 3.96

Tolerance mm : + - 0.25
 Rated speed rpm : 1730
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1515
 Rack travel in mm : 14.50
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 178.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 65.0
 tolerance degree : + - 4.0
 control lever
 position degree : 122.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 14.40
 Rated speed rpm : 1410
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1585
 Tolerance 1/min : + - 15

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1640

LOW IDLE

control lever
position degree : 82.0
tolerance degree : + - 4.0

control lever
position degree : 26.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 10.70

Testing:

Rated speed rpm : 350
rack travel mm : 9.40
Tolerance mm : + - 0.10

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 15.40
Tolerance mm : + - 0.05

Rated speed rpm : 780
rack travel mm : 13.70
Tolerance mm : + - 0.15

Rated speed rpm : 1000
rack travel mm : 14.30
Tolerance mm : + - 0.20

Rated speed rpm : 1250
rack travel mm : 15.40
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1500
rack travel mm : 15.40
Tolerance mm : + - 0.10

Rated speed rpm : 1300

Pressure hPa : -
rack travel mm : 12.60
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 1300

Pressure hPa : 660
rack travel mm : 14.30
Tolerance mm : + - 0.10

Pressure hPa : 520
rack travel mm : 13.10
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : > 270

Check
speed 1/min : > 80
Check
speed 1/min : > 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 780
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 9.40
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : + - 2.5
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information
Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 13.85
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 203.0

 Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 3.5

 Spred

 Tolerance
 cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5

 Rated speed rpm : 500

 Rack travel in mm : 4.60
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 24.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

 governor spring
 pre-tension
 click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880

Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 203.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 99.0
 tolerance degree : + 4.0

 RATED SPEED
 rack travel mm : 12.85
 Rated speed rpm : 920
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 980
 Tolerance 1/min : + 15

 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1200

 rack travel mm : 4.00
 Rated speed rpm : 1000
 Tolerance 1/min : + 15

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + 4.0

 Setting point w/out bumper spring

 Rated speed rpm : 500
 rack travel mm : 2.80
 Tolerance mm : + 0.10

 Testing:

 Rated speed rpm : 500
 rack travel mm : 4.60
 Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 595
Tolerance 1/min : + 50

TORQUE CONTROL
Rated speed rpm : 880
rack travel mm : 13.85
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 13.90
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 13.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : + 0.10

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 11.25
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 830
rack travel mm : 13.20
Tolerance mm : + 0.05

Pressure hPa : 750
rack travel mm : 12.10
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 225.0
Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 214.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 170.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 150.0
Tolerance
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 4.60
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 5.5
Spread
Tolerance
cm3/1000 strokes : 4.5
Check tolerance
cm3/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump
Pump designation : PE6P130A320RS7282
EP type number : 0 412 636 825

Governor
Governor design. : RQV300...900PA1059
Governor no. : 0 421 814 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information

Customer : PENTA
Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 8.30
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm	:	11.55
Tolerance mm	:	+ - 0.05
Del. quantity cm ³ /1000 strokes	:	349.0
Tolerance cm ³ /1000 strokes	:	+ - 1.5
Check tolerance cm ³ /1000S.	:	+ - 5.0
Spread	:	
Tolerance cm ³ /1000 strokes	:	7.0
Check tolerance cm ³ /1000S.	:	11.0
Rated speed rpm	:	300
Rack travel in mm	:	4.00
Tolerance mm	:	+ - 0.10
Del. quantity cm ³ /1000 strokes	:	23.0
Tolerance cm ³ /1000 strokes	:	+ - 3.0
Check tolerance cm ³ /1000S.	:	+ - 6.0
Spread	:	
Tolerance cm ³ /1000 strokes	:	7.0
Check tolerance cm ³ /1000S.	:	11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	928
guide sleeve travel mm	:	7.72
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	300
guide sleeve travel mm	:	1.81
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	650
guide sleeve travel mm	:	5.16
Tolerance mm	:	+ - 0.25

Rated speed rpm	:	315
guide sleeve travel mm	:	1.98
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	365
guide sleeve travel mm	:	2.54
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	420
guide sleeve travel mm	:	3.17
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	1210
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ - 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	980
Rack travel in mm	:	16.50
Tolerance mm	:	+ - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	2000
Del. quantity cm ³ /1000 strokes	:	349.0
Tolerance cm ³ /1000 strokes	:	+ - 1.5
Check tolerance cm ³ /1000S.	:	+ - 5.0
Spread	:	
Tolerance cm ³ /1000 strokes	:	7.0
Check tolerance cm ³ /1000S.	:	11.0

CONTROL LEVER

control lever position degree	:	61.0
tolerance degree	:	+ - 4.0
control lever position degree	:	117.0

tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 915
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + - 4.0

control lever
position degree : 18.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.00
Tolerance mm : + - 0.10

rack travel mm : > 5.60
Rated speed rpm : 200

Rated speed rpm : 365

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.55
Tolerance mm : + - 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2000
rack travel mm : 11.55
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -

rack travel mm : 8.30
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1420
rack travel mm : 3.00
Tolerance mm : + - 0.20

Pressure hPa : 640
rack travel mm : 0.25
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 5.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 4.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 700

Injection pump
Pump designation : PE6P120A320LS7917
EP type number : 0 412 626 972

Governor
Governor design. : RQV350...1050PA1366
Governor no. : 0 421 814 204

Cust. part No. : 0270744002

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. L/h : 120
Tolerance L/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm	:	14.40
Tolerance mm	:	+ - 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	218.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ - 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ - 4.0
<hr/>		
Spred	:	
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	350
<hr/>		
Rack travel in mm	:	5.80
Tolerance mm	:	+ - 0.10
<hr/>		
Del. quantity cm ³ /1000 strokes	:	19.0
Tolerance cm ³ /1000 strokes	:	+ - 3.0
Check tolerance cm ³ /1000S.	:	+ - 6.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	6.0
Check tolerance cm ³ /1000S.	:	10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1106
guide sleeve		
travel mm	:	8.02
Tolerance mm	:	+ - 0.15
<hr/>		
Rated speed rpm	:	350
guide sleeve		
travel mm	:	1.48
Tolerance mm	:	+ - 0.20
<hr/>		
Rated speed rpm	:	900
guide sleeve		
travel mm	:	5.69
Tolerance mm	:	+ - 0.25

Rated speed rpm	:	570
guide sleeve		
travel mm	:	3.57
Tolerance mm	:	+ - 0.25
<hr/>		
Rated speed rpm	:	1204
guide sleeve		
travel mm	:	10.00
Tolerance mm	:	+ - 0.25
<hr/>		
Rated speed rpm	:	1300
guide sleeve		
travel mm	:	11.50
Tolerance mm	:	+ - 0.50

GUIDE SLEEVE POSITION

control lever		
position degree	:	- - 1
Rated speed rpm	:	1160
<hr/>		
Rack travel in mm	:	13.40
Tolerance mm	:	+ - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1050
Aneroid pressure		
hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	218.0
Tolerance cm ³ /1000 strokes	:	+ - 1.0
Check tolerance cm ³ /1000S.	:	+ - 4.0
Spred		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever		
position degree	:	119.0
tolerance degree	:	+ - 4.0

RATED SPEED		
rack travel mm	:	13.40
Rated speed rpm	:	1095
Tolerance 1/min	:	+ - 5
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1185

Tolerance 1/min : + 15
rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.90

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 970
rack travel mm : 14.60
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Pressure hPa : 300
rack travel mm : 0.75
Tolerance mm : + 0.05

Pressure hPa : 650
rack travel mm : 3.35
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

REDUCED QUANTITY

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 163.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 785

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm ³ /1000S.	: + — 4.0
<hr/>	
Spred	
Tolerance cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
Rack travel in mm	: 5.00
Tolerance mm	: + — 0.10
Del. quantity cm ³ /1000 strokes	: 25.0
Tolerance cm ³ /1000 strokes	: + — 3.0
Check tolerance cm ³ /1000S.	: + — 6.0
Spred	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL	
Rated speed rpm	: 1117
guide sleeve	
travel mm	: 10.38
Tolerance mm	: + — 0.25
Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.69
Tolerance mm	: + — 0.25
Rated speed rpm	: 746
guide sleeve	
travel mm	: 6.20
Tolerance mm	: + — 0.25
Rated speed rpm	: 353
guide sleeve	
travel mm	: 2.45
Tolerance mm	: + — 0.25
Rated speed rpm	: 403
guide sleeve	
travel mm	: 3.18
Tolerance mm	: + — 0.25

Rated speed rpm	: 450
guide sleeve	
travel mm	: 3.66
Tolerance mm	: + — 0.25
Rated speed rpm	: 1320
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + — 0.50

GUIDE SLEEVE POSITION	
control lever	
position degree	: - 1
Rated speed rpm	: 1185
Rack travel in mm	: 10.80
Tolerance mm	: + — 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP	
Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1550
Del. quantity cm ³ /1000 strokes	: 290.0
Tolerance cm ³ /1000 strokes	: + — 1.0
Check tolerance cm ³ /1000S.	: + — 4.0
Spred	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER	
control lever	
position degree	: 121.0
tolerance degree	: + — 4.0
RATED SPEED	
rack travel mm	: 11.30
Rated speed rpm	: 1110
Tolerance 1/min	: + — 5
rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: + — 15
rack travel mm	: 0.50
Tolerance mm	: + — 0.50
Rated speed rpm	: 1300

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : + 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.10
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 12.25
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1050
Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 240

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 20.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 10.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : + 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000s. : + 6.0

Spred
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : + 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : + 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : + 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : + 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : + 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : + 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 11.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1550
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.00
Rated speed rpm : 1105
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

Tolerance 1/min : + 15

LOW IDLE

control lever

position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : + 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.10
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 12.25
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1050
Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 240

Check speed 1/min : > 80
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1550
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 288.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0

Aneroid pressure hPa : 1550
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 302.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0

Aneroid pressure hPa : -
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 648 702

Injection pump
Pump designation : PE8P120A320LS7915
EP type number : 0 412 628 929

Governor
Governor design. : RQV250...1150PA1346
Governor no. : 0 421 814 193

Cust. part No. :

Customer-spec. information

Customer : DHI
Motor : DV15T
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 16.00
Tolerance mm : + 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 222.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 250

Rack travel in mm : 5.60
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1207

guide sleeve
travel mm : 8.92
Tolerance mm : + - 0.15

Rated speed rpm : 250

guide sleeve
travel mm : 1.31
Tolerance mm : + - 0.20

Rated speed rpm : 1185

guide sleeve
travel mm : 8.60
Tolerance mm : + - 0.25

Rated speed rpm : 640

guide sleeve
travel mm : 4.65
Tolerance mm : + - 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 11.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1227

Rack travel in mm : 12.80
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 222.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 58.0
tolerance degree : + - 4.0

control lever
position degree : 122.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 12.80
Rated speed rpm : 1195
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : + - 15

rack travel mm : 0.50

Tolerance mm : + - 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + - 4.0

control lever
position degree : 21.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 7.30

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : + - 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 650
rack travel mm : 13.80
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.10
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 350
rack travel mm : 10.00
Tolerance mm : + - 0.20

Pressure hPa : 735
rack travel mm : 12.10
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 165
Rated speed rpm : < 190

Check
speed 1/min : > 155
Check
speed 1/min : < 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm3/1000 strokes : 241.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 123.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 193.0
Tolerance
cm3/1000 strokes : + - 20.0
Check tolerance
cm3/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.60
Tolerance mm : + 0.10
Det. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.10.97
Test oil : ISO 4113

Combination No. : 0 402 648 919

Injection pump
Pump designation : PE8P120A320LS7843
EP type number : 0 412 628 859

Governor
Governor design. : RQV350...1050PA842
: -8
Governor no. : 0 421 813 952

Cust. part No. : 022 074 0102

Customer-spec. information

Customer : MB-NFZ
Motor : OM442 LA
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.60
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 230.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000s. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000s. : 9.0
 Rated speed rpm : 350
 Rack travel in mm : 5.80
 Tolerance mm : + - 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000s. : + - 6.0
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000s. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1270
 guide sleeve travel mm : 11.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 350
 guide sleeve travel mm : 1.00
 Tolerance mm : + - 0.20
 Rated speed rpm : 510
 guide sleeve travel mm : 3.85
 Tolerance mm : + - 0.25

Rated speed rpm : 1100
 guide sleeve travel mm : 8.10
 Tolerance mm : + - 0.30

GUIDE SLEEVE POSITION

control lever position degree : - 1
 Rated speed rpm : 1125

Rack travel in mm : 17.25
 Tolerance mm : + - 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 230.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000s. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000s. : 9.0

CONTROL LEVER

control lever position degree : 117.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 13.50
 Rated speed rpm : 1095
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1175
 Tolerance 1/min : + - 15

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.40

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : + - 0.30

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.60
Tolerance mm : + - 0.10

Rated speed rpm : 1050
rack travel mm : 14.60
Tolerance mm : + - 0.10

Rated speed rpm : 800
rack travel mm : 14.90
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1250
rack travel mm : 0.20
Tolerance mm : + - 0.10

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1000

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 400
rack travel mm : -3.50
Tolerance mm : + - 0.10

Pressure hPa : 550

rack travel mm : -2.20
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1500
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 230.5
Tolerance cm³/1000 strokes : + - 1.5
Check tolerance cm³/1000S. : + - 4.5
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : 1500
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 238.0
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 5.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 137.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.80
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.07.97
Test oil : ISO 4113

Combination No. : 0 402 648 920

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RQV350...1050PA870
: -16
Governor no. : 0 421 813 953

Cust. part No. : 022 074 0202

Customer-spec. information

Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : ~ 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 8

CRT ZERO POSITION

Rack travel in mm : 14.30
Tolerance mm : + 0.10

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 258.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108
guide sleeve
travel mm : 8.05
Tolerance mm : \pm 0.25

Rated speed rpm : 350
guide sleeve
travel mm : 1.55
Tolerance mm : \pm 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.55

Tolerance mm : \pm 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 5.65
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.05
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1125

Rack travel in mm : 17.25
Tolerance mm : \pm 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1100
Del. quantity
cm³/1000 strokes : 258.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 14.30
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 1300

Pressure hPa : 1300
rack travel mm : 0.45
Tolerance mm : + - 0.05

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : + - 0.10

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.30
Tolerance mm : + - 0.10

Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : + - 0.10

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1100

MEASUREMENT

Pressure hPa : 290
rack travel mm : -5.50
Tolerance mm : + - 0.05

Pressure hPa : 780
rack travel mm : -1.30
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 4.5

Aneroid pressure
hPa : 1800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

REDUCED QUANTITY

Aneroid pressure
hPa : 1800
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 676 840

Injection pump
Pump designation : PE6P120A320LS7918
EP type number : 0 412 626 971

Governor
Governer design. : RSV550...1050POA685
Governer no. : 0 421 833 608

Cust. part No. : 0270744202

Customer-spec. information

Customer : MB-NFZ
Motor : OM 441 LA
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 14.50
Tolerance mm : + 0.05

Del. quantity _____
 cm³/1000 strokes : 227.0
 Tolerance _____
 cm³/1000 strokes : + 1.0
 Check tolerance _____
 cm³/1000S. : + 4.0
 Spred _____
 Tolerance _____
 cm³/1000 strokes : 5.0
 Check tolerance _____
 cm³/1000S. : 9.0

Rated speed rpm : 550
 Rack travel in mm : 4.30
 Tolerance mm : + 0.10
 Del. quantity _____
 cm³/1000 strokes : 19.0
 Tolerance _____
 cm³/1000 strokes : + 3.0
 Check tolerance _____
 cm³/1000S. : + 6.0
 Spred _____
 Tolerance _____
 cm³/1000 strokes : 6.0
 Check tolerance _____
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

Aneroid pressure
 hPa : -
 Del. quantity _____
 cm³/1000 strokes : 227.0
 Tolerance _____
 cm³/1000 strokes : + 1.0
 Check tolerance _____
 cm³/1000S. : + 4.0
 Spred _____
 Tolerance _____
 cm³/1000 strokes : 5.0
 Check tolerance _____
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 88.0
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
 rack travel mm : 13.50
 Rated speed rpm : 1122
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1071
 rack travel mm : 13.50
 Rated speed rpm : 1123
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1072
 rack travel mm : 13.50
 Rated speed rpm : 1124
 Tolerance 1/min : + 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1073
rack travel mm : 13.50

Rated speed rpm : 1125
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1074
rack travel mm : 13.50

Rated speed rpm : 1126
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

rack travel mm : 13.50

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 550
rack travel mm : 4.30
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 565
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL
Rated speed rpm : 1030
rack travel mm : 14.50
Tolerance mm : + 0.05

Rated speed rpm : 960
rack travel mm : 14.70
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 15.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 15.20
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.95
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 650
rack travel mm : 13.85
Tolerance mm : + 0.20

Pressure hPa : 450
rack travel mm : 11.75
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 4.30
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 738 800

Injection pump
Pump designation : PE8P130A720/3LS7443
EP type number : 0 412 738 801

Governor
Governor design. : RQV350...900PA1359
Governor no. : 0 421 814 202

Cust. part No. :

Customer-spec. information
Customer : INCANTIERI
Motor : V1708T2-SPE
Power KW : 815.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 160
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1-2-6-3-4-5-7-8

Phasing : 0-45-90-135-180-225
: -270-315
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 420.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 5.0

Spred _____

Tolerance mm : + - 1.30

Tolerance
cm³/1000 strokes : 6.0

FULL LOAD DELIVERY AT FULL LOAD STOP

Check tolerance
cm³/1000S. : 10.5

Rated speed rpm : 900

Aneroid pressure

hPa : 900

Del. quantity
cm³/1000 strokes : 420.0

Tolerance

cm³/1000 strokes : + - 1.0

Check tolerance

cm³/1000S. : + - 5.0

Spred

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 10.5

Rated speed rpm : 350

Rack travel in mm : 4.20

Tolerance mm : + - 0.10

Del. quantity

cm³/1000 strokes : 25.0

Tolerance

cm³/1000 strokes : + - 3.0

Check tolerance

cm³/1000S. : + - 7.0

Spred

Tolerance

cm³/1000 strokes : 9.5

Check tolerance

cm³/1000S. : 13.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958

CONTROL LEVER

guide sleeve

control lever

travel mm : 8.29

position degree : 115.0

Tolerance mm : + - 0.15

tolerance degree : + - 4.0

Rated speed rpm : 350

RATED SPEED

guide sleeve

rack travel mm : 13.80

travel mm : 2.31

Rated speed rpm : 945

Tolerance mm : + - 0.20

Tolerance 1/min : + - 5

Rated speed rpm : 690

rack travel mm : 4.00

guide sleeve

Rated speed rpm : 1065

travel mm : 5.08

Tolerance 1/min : + - 15

Tolerance mm : + - 0.25

rack travel mm : 0.50

Rated speed rpm : 1160

Tolerance mm : + - 0.50

guide sleeve

Rated speed rpm : 1150

travel mm : 11.50

LOW IDLE

Tolerance mm : + - 0.50

control lever

GUIDE SLEEVE POSITION

position degree : 67.0

Rated speed rpm : 1011

tolerance degree : + - 4.0

Rack travel in mm : 13.80

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350

rack travel mm : 4.20
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : + - 30

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 14.85
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 250
rack travel mm : 10.80
Tolerance mm : + - 0.20

Pressure hPa : 320
rack travel mm : 12.60
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 5.0

Spred
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.5

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 4.20
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 7.0
Spred
Tolerance
cm3/1000 strokes : 9.5
Check tolerance
cm3/1000S. : 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 13.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 636

Injection pump
Pump designation : PES6P120A720RS7445
EP type number : 0 412 726 973

Governor
Governer design. : RQ300/1100PA1360
Governer no. : 0 421 801 824

Cust. part No. : 618.00.08.0048

Customer-spec. information

Customer : SNF
Motor : WD618.42
Power KW : 310.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 155
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 15.00
Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 274.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 8.20
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1158
 guide sleeve
 travel mm : 6.35
 Tolerance mm : + - 0.15
 Rated speed rpm : 300
 guide sleeve
 travel mm : 1.74
 Tolerance mm : + - 0.20
 Rated speed rpm : 1100
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + - 0.10
 Rated speed rpm : 425
 guide sleeve
 travel mm : 5.00

Tolerance mm : + - 0.10
 Rated speed rpm : 500
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + - 0.10
 Rated speed rpm : 1290
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : 109
 Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + - 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 274.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 99.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 13.80
 Rated speed rpm : 1153
 Tolerance 1/min : + - 8
 rack travel mm : 4.00
 Rated speed rpm : 1225
 Tolerance 1/min : + - 15
 rack travel mm : 0.70
 Tolerance mm : + - 0.70

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300
rack travel mm : 8.20
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 425
Tolerance 1/min : + - 20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 14.85
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.80
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.90
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700

rack travel mm : 14.10
Tolerance mm : + - 0.05

Pressure hPa : 375
rack travel mm : 12.40
Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.90
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 8.20
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000s. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 957

Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939

Governor
Governor design. : RQV350...1150PA1074
: -2K
Governor no. : 0 421 815 367

Cust. part No. : 0250741002

Customer-spec. information

Customer : MB-NFZ
Motor : OM366LA
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 3.30
Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.10
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 269.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206

guide sleeve
travel mm : 9.35
Tolerance mm : + - 0.15

Rated speed rpm : 350

guide sleeve
travel mm : 1.53
Tolerance mm : + - 0.20

Rated speed rpm : 855

guide sleeve
travel mm : 5.56
Tolerance mm : + - 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.17
Tolerance mm : + - 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1331

Rack travel in mm : 13.50
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1325
Tolerance 1/min : + - 15

rack travel mm : 0.70
Tolerance mm : + - 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 65.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.90

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : + - 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.10
Tolerance mm : + - 0.05

Rated speed rpm : 950
rack travel mm : 13.95
Tolerance mm : + - 0.10

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : + - 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 10.10
Tolerance mm : + - 0.15

Rated speed rpm : 1150
Pressure hPa : 400
rack travel mm : 10.90
Tolerance mm : + - 0.05

Pressure hPa : 850
rack travel mm : 12.50
Tolerance mm : + - 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 200

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100

MEASUREMENT

rack travel mm : 13.50
Tolerance mm : + - 0.20
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 042

Injection pump
Pump designation : PES6H120/320RS26
EP type number : 0 412 726 014

Governor
Governor design. : RE36
Governor no. : 0 421 890 374

Cust. part No. : 8192940 P02 v.10/97

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : D7C EURO II
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 8.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check tolerance mm : +/- 0.10

Check value (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.30

Setting point (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check tolerance mm : +/- 0.10

Check value (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.30

Stop position (P, R and H pump)

Uact V : Value with deenergised adjusting magnet and control rod in stop position.
 CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.35

Stop position (M pump)

Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference Amplitude to Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
 Uact V : 2.900
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity cm3/1000 strokes : 308.0
 Tolerance cm3/1000 strokes : +/- 1.0
 Check tolerance cm3/1000S. : +/- 5.0
 Spread
 Tolerance cm3/1000 strokes : 8.0
 Check tolerance cm3/1000S. : 11.0
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.670
 Tolerance Volt : +/- 0.060
 Check tolerance Volt : +/- 0.060
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity cm3/1000 strokes : 16.0
 Tolerance cm3/1000 strokes : +/- 2.0
 Spread

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 25.08.97
Test oil : ISO 4113

Combination No. : 0 403 444 150

Injection pump
Pump designation : PES4MW100/720RS1212
EP type number : 0 413 404 114

Governor
Governor design. : RQV300...1300MW50
: -23
Governor no. : 0 420 083 269

Cust. part No. : 0250741602

Customer-spec. information

Customer : MB-NFZ
Motor : OM364LA
Power KW : 102.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.75
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 100.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 6.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1345
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1465
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.40
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 13.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.20

Tolerance mm : + - 0.10

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 9.90

Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 400

rack travel mm : 12.70

Tolerance mm : + - 0.10

Pressure hPa : 200

rack travel mm : 11.00

Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 220

Check speed 1/min : > 80

Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 700

Rated speed rpm : 600

Del. quantity cm³/1000 strokes : 87.5

Tolerance cm³/1000 strokes : + - 1.5

Check tolerance cm³/1000S. : + - 4.0

Spread

Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 7.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity cm³/1000 strokes : 35.0

Tolerance cm³/1000 strokes : + - 1.0

Check tolerance cm³/1000S. : + - 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm³/1000 strokes : 90.0

Tolerance

cm³/1000 strokes : + - 5.0

Check tolerance

cm³/1000S. : + - 8.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.40

Tolerance mm : + - 0.10

Del. quantity

cm³/1000 strokes : 12.0

Tolerance

cm³/1000 strokes : + - 2.0

Check tolerance

cm³/1000S. : + - 4.5

Spread

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.08.97
Test oil : ISO 4113

Combination No. : 0 403 466 137

Injection pump
Pump designation : PES6MW100/120RS1148
EP type number : 0 413 406 143

Governor
Governor design. : RSV400...900MW7A319
: -24
Governor no. : 0 420 085 216

Cust. part No. : 3921082

Customer-spec. information

Customer : CDC
Motor : 6 CTA

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : 9.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.55
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 184.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spreed

 Tolerance
 cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5

Rack travel in mm : 5.80
 Tolerance mm : + 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.65
 Tolerance mm : + 0.35

 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 184.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER
 control lever
 position degree : 109.0
 tolerance degree : + 4.0

RATED SPEED
 rack travel mm : 12.50
 Rated speed rpm : 945
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 985
 Tolerance 1/min : + 5

 rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1125

 rack travel mm : 4.00
 Rated speed rpm : 990
 Tolerance 1/min : + 15

LOW IDLE

control lever
 position degree : 79.0
 tolerance degree : + 4.0

 Setting point w/out bumper spring

 Rated speed rpm : 100
 CRT mm min. : > 19.00

 Testing:

 Rated speed rpm : 400
 rack travel mm : 5.80
 Tolerance mm : + 0.10

 rack travel mm : 2.00
 Rated speed rpm : 460
 Tolerance 1/min : + 30

TORQUE CONTROL
 Rated speed rpm : 900
 rack travel mm : 13.55
 Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.97
Test oil : ISO 4113

Combination No. : 0 400 874 250

Injection pump
Pump designation : PES4A95D320RS2807
EP type number : 0 410 894 994

Governor
Governor design. : RSV375...1125A2C2178
: -7R
Governor no. : 0 420 233 279

Cust. part No. :

Customer-spec. information

Customer : VALMET
Motor : 420 DS
Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.55
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Beginning of delivery difference

and maximum rack
travel : 9.00
Tolerance mm : + 0.50
Difference ° CS : 5.00

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 87.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + - 3.0

Spred

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 5.60

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 10.20
Rated speed rpm : 1170
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : + - 15

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1410

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : + - 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 5.10
Tolerance mm : + - 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 375
rack travel mm : 5.60
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 495
Tolerance 1/min : + - 30

TORQUE CONTROL

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1125
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 87.5
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 3.5

Rated speed rpm	:	1125
rack travel mm	:	11.25
Tolerance mm	:	+ - 0.05
<hr/>		
Rated speed rpm	:	500
rack travel mm	:	11.60
Tolerance mm	:	+ - 0.05
<hr/>		
Rated speed rpm	:	750
rack travel mm	:	11.55
Tolerance mm	:	+ - 0.05
<hr/>		
Rated speed rpm	:	965
rack travel mm	:	11.35
Tolerance mm	:	+ - 0.10

Check tolerance cm ³ /1000S.	:	+ - 4.5
Spread	:	
Tolerance cm ³ /1000 strokes	:	5.5
Check tolerance cm ³ /1000S.	:	9.0

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	-
Rated speed rpm	:	750
Del. quantity cm ³ /1000 strokes	:	87.5
Tolerance cm ³ /1000 strokes	:	+ - 2.0
Check tolerance cm ³ /1000S.	:	+ - 4.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.25
Tolerance mm	:	+ - 0.75
Del. quantity cm ³ /1000 strokes	:	202.0
Tolerance cm ³ /1000 strokes	:	+ - 8.0
Check tolerance cm ³ /1000S.	:	+ - 11.0

LOW IDLE

Rated speed rpm	:	375
Rack travel in mm	:	5.60
Tolerance mm	:	+ - 0.10
Del. quantity cm ³ /1000 strokes	:	21.0
Tolerance cm ³ /1000 strokes	:	+ - 2.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.97
Test oil : ISO 4113

Combination No. : 0 400 874 257

Injection pump
Pump designation : PES4A95D320RS2807
EP type number : 0 410 894 994

Governor
Governor design. : RSV375...1125A2C898R
Governor no. : 0 420 233 351

Cust. part No. : 8367 54718

Customer-spec. information

Customer : SISU
Motor : 420 DS
Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + - 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 2.55
Tolerance mm : + - 0.05
Check tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270
Tolerance : + - 0.50
Check tolerance °NW : + - 0.75

Beginning of delivery difference

and maximum rack
travel : 9.00
Tolerance mm : + - 0.50
Difference ° CS : 5.00

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.25
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 87.5

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance cm³/1000S. : + 3.0
 Spred
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 8.0

 Rated speed rpm : 375
 Rack travel in mm : 5.60
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 21.0
 Tolerance cm³/1000 strokes : + 2.0
 Check tolerance cm³/1000S. : + 4.5
 Spred
 Tolerance cm³/1000 strokes : 5.5
 Check tolerance cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1125
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 87.5
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.0
 Spred
 Tolerance cm³/1000 strokes : 3.5

Check tolerance cm³/1000S. : 8.0

CONTROL LEVER

control lever position degree : 101.0
 tolerance degree : + 4.0

RATED SPEED
 rack travel mm : 10.20
 Rated speed rpm : 1170
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1250
 Tolerance 1/min : + 15

rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1410

rack travel mm : 4.00
 Rated speed rpm : 1260
 Tolerance 1/min : + 15

LOW IDLE

control lever position degree : 75.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 375
 rack travel mm : 5.10
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 375
 rack travel mm : 5.60
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 495
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1125
rack travel mm : 11.25
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : + - 0.05

Rated speed rpm : 750
rack travel mm : 11.55
Tolerance mm : + - 0.05

Rated speed rpm : 965
rack travel mm : 11.35
Tolerance mm : + - 0.10

Check tolerance cm³/1000S. : + - 4.5
Spread
Tolerance cm³/1000 strokes : 5.5
Check tolerance cm³/1000S. : 9.0

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 87.5
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + - 0.75
Del. quantity cm³/1000 strokes : 202.0
Tolerance cm³/1000 strokes : + - 8.0
Check tolerance cm³/1000S. : + - 11.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 5.60
Tolerance mm : + - 0.10
Del. quantity cm³/1000 strokes : 21.0
Tolerance cm³/1000 strokes : + - 2.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.11.97
Test oil : ISO 4113

Combination No. : 9 400 030 642X

Injection pump
Pump designation : PES4A80D320RS3501
EP type number : 9 410 037 201

Governor
Governor design. : RSV400...2000A0C806R
Governor no. : 9 420 034 293

Cust. part No. : BTL

Customer-spec. information
Motor : OM616 DI

TEST BENCH REQUIREMENTS

Inlet Line : 1.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 9 451 037 458

Inlet press. bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1600

Rack travel in mm : 8.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.0

Spread

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 400
 Rack travel in mm : 5.50
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 9.0
 Tolerance cm³/1000 strokes : + - 1.5
 Check tolerance cm³/1000S. : + - 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : FREE
 Rated speed rpm : 1000
 Rack travel in mm : 0.50
 Tolerance mm : + - 0.20
 governor spring pre-tension click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1600
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 37.0
 Tolerance cm³/1000 strokes : + - 0.5
 Check tolerance cm³/1000S. : + - 2.0
 Spread
 Tolerance cm³/1000 strokes : 2.5
 Check tolerance cm³/1000S. : 4.0

CONTROL LEVER

control lever position degree	:	99.0
tolerance degree	:	+ - 4.0
RATED SPEED		
rack travel mm	:	7.00
Rated speed rpm	:	1680
Tolerance 1/min	:	+ - 5
rack travel mm	:	4.00
Rated speed rpm	:	1725
Tolerance 1/min	:	+ - 15
rack travel mm	:	0.85
Tolerance mm	:	+ - 0.55
Rated speed rpm	:	1900
rack travel mm	:	4.00
Rated speed rpm	:	1735
Tolerance 1/min	:	+ - 15

LOW IDLE

control lever position degree	:	73.0
tolerance degree	:	+ - 4.0
Setting point w/out bumper spring		
Rated speed rpm	:	400
rack travel mm	:	5.00
Tolerance mm	:	+ - 0.10
Rated speed rpm	:	100
CRT mm min.	:	> 19.00
Testing:		
Rated speed rpm	:	400
rack travel mm	:	5.50
Tolerance mm	:	+ - 0.10
rack travel mm	:	2.00
Rated speed rpm	:	650
Tolerance 1/min	:	+ - 30

TORQUE CONTROL		
Rated speed rpm	:	1600
rack travel mm	:	8.00
Tolerance mm	:	+ - 0.05
Rated speed rpm	:	500
rack travel mm	:	8.75

Tolerance mm : + 0.05
Rated speed rpm : 800
rack travel mm : 8.50
Tolerance mm : + 0.05
Rated speed rpm : 1000
rack travel mm : 8.00
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.50
Tolerance mm : + 0.25

Rated speed rpm : 400
Rack travel in mm : 5.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 036 761

Injection pump
Pump designation : PES6P110A120RS3353
EP type number : 0 412 016 752

Governor
Governer design. : RQV450...1100PA1233K
Governer no. : 0 421 815 474

Cust. part No. : 3926886

Customer-spec. information

Customer : CDC
Motor : 6CTA
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack travel : 13.00
Difference ° CS : 1.20

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500

Rack travel in mm : 6.20
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 28.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1214
guide sleeve
travel mm : 8.09

Tolerance mm : \pm 0.15

Rated speed rpm : 500
guide sleeve
travel mm : 1.82

Tolerance mm : \pm 0.25

Rated speed rpm : 890

guide sleeve
travel mm : 4.75
Tolerance mm : \pm 0.25

Rated speed rpm : 1570
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 11.40
Rated speed rpm : 1170
Tolerance 1/min : \pm 15

rack travel mm : 8.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 5

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1360

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 6.0

Control lever difference
Grad : 36.0

tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : > 7.90

Testing:

Rated speed rpm : 500
rack travel mm : 6.20
Tolerance mm : + 0.20

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.70
Tolerance mm : + 0.20

Rated speed rpm : 1100
rack travel mm : 12.50
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 10.55
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 890
rack travel mm : 12.60
Tolerance mm : + 0.30

Pressure hPa : 720
rack travel mm : 11.15
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 380

Check speed 1/min : > 80
Check speed 1/min : < 390

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 189.5
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : 1200
Rated speed rpm : 1100
Del. quantity cm³/1000 strokes : 178.5
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0

Aneroid pressure hPa : -
Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 121.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : + 0.50
Del. quantity cm³/1000 strokes : 161.0
Tolerance cm³/1000 strokes : + 20.0

Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 6.20
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 046 860

Injection pump
Pump designation : PES6P110A320LS3330
EP type number : 0 412 016 745

Governor
Governor design. : RQV350...1150PA1130K
Governor no. : 0 421 815 386

Cust. part No. : 1823135C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-466
Power KW : 156.5

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 15.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 13.55
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 150.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0
 Rated speed rpm : 325
 Rack travel in mm : 7.20
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1305

Rack travel in mm : 13.25
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 150.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 123.0
 tolerance degree : + 6.0

RATED SPEED
 rack travel mm : 13.25
 Rated speed rpm : 1205
 Tolerance 1/min : + 15
 rack travel mm : 4.00
 Rated speed rpm : 1375
 Tolerance 1/min : + 5
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 79.0
 tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 325
 rack travel mm : 7.20
 Tolerance mm : + 0.10

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 750
 rack travel mm : 13.55
 Tolerance mm : + 0.05

Rated speed rpm : 1150
 rack travel mm : 14.15
 Tolerance mm : + - 0.10

 Rated speed rpm : 600
 rack travel mm : 13.10
 Tolerance mm : + - 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
 Pressure hPa : 1200
 rack travel mm : 14.15
 Tolerance mm : + - 0.10

Rated speed rpm : 1150
 Pressure hPa : -
 rack travel mm : 11.50
 Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 1150

 Pressure hPa : 500
 rack travel mm : 13.50
 Tolerance mm : + - 0.20

Pressure hPa : 230
 rack travel mm : 12.20
 Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 280

Check speed 1/min : > 80
 Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 1150
 Del. quantity
 cm3/1000 strokes : 163.0
 Tolerance
 cm3/1000 strokes : + - 2.0

Check tolerance
 cm3/1000S. : + - 4.0
 Spread
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 1150
 Del. quantity
 cm3/1000 strokes : 100.0
 Tolerance
 cm3/1000 strokes : + - 1.0
 Check tolerance
 cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.00
 Tolerance mm : + - 0.50
 Del. quantity
 cm3/1000 strokes : 140.0
 Tolerance
 cm3/1000 strokes : + - 20.0
 Check tolerance
 cm3/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 325

 Rack travel in mm : 7.20
 Tolerance mm : + - 0.10
 Del. quantity
 cm3/1000 strokes : 27.0
 Tolerance
 cm3/1000 strokes : + - 2.0
 Check tolerance
 cm3/1000S. : + - 4.5
 Spread
 Tolerance
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 6.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 196 703

Injection pump
Pump designation : PES6P120A720RS3184
EP type number : 0 412 026 727

Governor
Governor design. : RE24
Governor no. : 0 421 890 018

Cust. part No. : RE 57372

Customer-spec. information

Customer : DEERE
Motor : 6076 HRW35
Power KW : 181.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 10.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0.720
Tolerance Volt : ± 0.065
 CRT mm : 1.00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4.500
Tolerance Volt : ± 0.115
 CRT mm : 19.00
Tolerance mm : ± 0.80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 600
Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
 $U_{act} \text{ V}$: 2.710
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 141.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ s.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000 \text{ s.}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 $U_{act} \text{ V}$: 2.710
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 142.0

Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.400
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 736 812

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1200PA964
: -4K
Governor no. : 0 421 815 256

Cust. part No. : 3921774

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : + 5.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 5.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.35
 Tolerance mm : + 0.05
 Del. quantity cm³/1000 strokes : 148.5
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 350
 Rack travel in mm : 5.50
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 30.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.0
 Spred
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1268
 guide sleeve travel mm : 9.68
 Tolerance mm : + 0.25
 Rated speed rpm : 350
 guide sleeve travel mm : 2.04
 Tolerance mm : + 0.25
 Rated speed rpm : 836
 guide sleeve travel mm : 6.77
 Tolerance mm : + 0.25

Rated speed rpm : 354
 guide sleeve travel mm : 1.95
 Tolerance mm : + 0.25
 Rated speed rpm : 404
 guide sleeve travel mm : 2.60
 Tolerance mm : + 0.25
 Rated speed rpm : 490
 guide sleeve travel mm : 3.89
 Tolerance mm : + 0.25
 Rated speed rpm : 1630
 guide sleeve travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever position degree : - 1
 Rated speed rpm : 1260
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure hPa : 1200
 Del. quantity cm³/1000 strokes : 148.5
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 119.0
 tolerance degree : + 4.0
 RATED SPEED
 rack travel mm : 11.30

Rated speed rpm : 1250
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1380
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : + 4.0

Control lever difference
 Grad : 54.0
 tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 7.20

Testing:

Rated speed rpm : 350
 rack travel mm : 5.50
 Tolerance mm : + 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1200
 rack travel mm : 12.35
 Tolerance mm : + 0.05

Rated speed rpm : 650
 rack travel mm : 11.10
 Tolerance mm : + 0.20

Rated speed rpm : 550
 rack travel mm : 11.00
 Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
 Pressure hPa : 1200
 rack travel mm : 12.35
 Tolerance mm : + 0.05

Rated speed rpm : 1200
 Pressure hPa : -
 rack travel mm : 7.90
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1200
 Pressure hPa : 575
 rack travel mm : 11.40
 Tolerance mm : + 0.20

Pressure hPa : 225
 rack travel mm : 8.95
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 290

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 154.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 88.5
 Tolerance
 cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : +— 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : +— 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : +— 20.0
Check tolerance
cm³/1000S. : +— 25.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.50
Tolerance mm : +— 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : +— 3.0
Check tolerance
cm³/1000S. : +— 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 736 813

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1100PA964
: -5K
Governor no. : 0 421 815 257

Cust. part No. : 3921772

Customer-spec. information

Customer : CDC
Motor : 6CTA-A
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55

Tolerance mm : + 0.05
 Del. quantity cm³/1000 strokes : 187.5
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 350
 Rack travel in mm : 5.60
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 30.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.0
 Spread
 Tolerance cm³/1000 strokes : 3.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000
 guide sleeve travel mm : 8.20
 Tolerance mm : + 0.10
 Rated speed rpm : 350
 guide sleeve travel mm : 1.90
 Tolerance mm : + 0.10
 Rated speed rpm : 450
 guide sleeve travel mm : 3.30
 Tolerance mm : + 0.20
 Rated speed rpm : 600

+ guide sleeve travel mm : 5.30
 + Tolerance mm : + 0.20
 + Rated speed rpm : 1200
 + guide sleeve travel mm : 9.80
 + Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever position degree : - 1

FULL LOAD DELIVERY AT FULL LOAD STOP

+ Rated speed rpm : 1100
 + Aneroid pressure hPa : 1500
 + Del. quantity cm³/1000 strokes : 187.5
 + Tolerance cm³/1000 strokes : + 1.0
 + Check tolerance cm³/1000S. : + 4.0
 + Spread
 + Tolerance cm³/1000 strokes : 5.0
 + Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 118.0
tolerance degree : + 4.0

RATED SPEED
 rack travel mm : 13.50
 Rated speed rpm : 1150
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1305
 Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Control lever difference
Grad : 51.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 275
CRT mm min. : > 7.20

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : + 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.55
Tolerance mm : + 0.05

Rated speed rpm : 650
rack travel mm : 13.60
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 13.10
Tolerance mm : + 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500

Rated speed rpm : 1100
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1100
Pressure hPa : 845
rack travel mm : 13.80
Tolerance mm : + 0.20

Pressure hPa : 335
rack travel mm : 10.15
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 203.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.30
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 5.0

Spred

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 736 814

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1200PA964
: -6K
Governor no. : 0 421 815 258

Cust. part No. : 3921775

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. L/h : 120
Tolerance L/h : + 5.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + - 1.0

Prestroke mm : 4.40
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-50-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.55
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 184.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.40
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 5.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 184.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 13.50
Rated speed rpm : 1250
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1410
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 15.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT nm min. : > 7.20

Testing:

Rated speed rpm : 350
rack travel mm : 5.40
Toleranice mm : + - 0.10

Rated speed rpm : 425

TORQUE CONTROL
Rated speed rpm : 1200
rack travel mm : 14.55
Tolerance mm : + - 0.05

Rated speed rpm : 650
rack travel mm : 11.50
Tolerance mm : + - 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200
rack travel mm : 14.55
Tolerance mm : + - 0.05

Rated speed rpm : 1200
Pressure hPa : -
rack travel mm : 7.70
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 1200
Pressure hPa : 860
rack travel mm : 13.40
Tolerance mm : + - 0.20

Pressure hPa : 320
rack travel mm : 9.45
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 167.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.40
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + - 20.0
Check tolerance
cm³/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.40
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 736 815

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1000PA964
: -7K
Governor no. : 0 421 815 259

Cust. part No. : 3921773

Customer-spec. information

Customer : CDC
Motor : 6CTA-A
Power KW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.85
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 218.0
 Tolerance mm : + - 0.20
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 350
 Rack travel in mm : 5.70
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 5.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000
 guide sleeve
 travel mm : 8.50
 Tolerance mm : + - 0.10
 Rated speed rpm : 350
 guide sleeve
 travel mm : 1.70
 Tolerance mm : + - 0.10
 Rated speed rpm : 450
 guide sleeve
 travel mm : 3.20
 Tolerance mm : + - 0.20
 Rated speed rpm : 600
 guide sleeve
 travel mm : 5.40

Tolerance mm : + - 0.20
 Rated speed rpm : 1150
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + - 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 218.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 14.30
 Rated speed rpm : 1055
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1220
 Tolerance 1/min : + - 15
 rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + - 4.0

Control lever difference
Grad : 51.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 7.20

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : + - 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 15.85
Tolerance mm : + - 0.05

Rated speed rpm : 650
rack travel mm : 14.20
Tolerance mm : + - 0.20

Rated speed rpm : 1000
rack travel mm : 15.40
Tolerance mm : + - 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1500
rack travel mm : 15.85
Tolerance mm : + - 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 900
Pressure hPa : 845
rack travel mm : 13.80

Tolerance mm : + - 0.20
Pressure hPa : 335
rack travel mm : 10.15
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 214.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.40
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + - 20.0
Check tolerance
cm³/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.70

Tolerance mm : + - 0.10

Det. quantity

cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : + - 3.0

Check tolerance

cm³/1000s. : + - 5.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 736 816

Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1200PA964
: -8K
Governor no. : 0 421 815 264

Cust. part No. : 3921770

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : + 5.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 6.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.75
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 192.5

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 5.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1260

Rack travel in mm : 16.50
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 192.5
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 13.20
Rated speed rpm : 1250
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1415
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + - 4.0

Control lever difference
Grad : 55.0
tolerance degree : + - 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 7.20

Testing:
Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : + - 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.75
Tolerance mm : + 0.05

Rated speed rpm : 650
rack travel mm : 12.80
Tolerance mm : + 0.20

Rated speed rpm : 1200
rack travel mm : 14.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 14.75
Tolerance mm : + 0.05

Rated speed rpm : 1100
Pressure hPa : -
rack travel mm : 8.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1100
Pressure hPa : 785
rack travel mm : 13.00
Tolerance mm : + 0.20

Pressure hPa : 335
rack travel mm : 9.65
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 401 848 821

Injection pump
Pump designation : PE8P120A920/5LS3804
EP type number : 0 411 828 705

Governor
Governor design. : RQV300...1000PA475
: -2
Governor no. : 0 421 813 949

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8285.22.004

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 8- 4- 3- 6
: - 5- 7- 2

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 186.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 300
 Rack travel in mm : 5.30
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 24.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
 guide sleeve travel mm : 5.50
 Tolerance mm : + 0.20

 Rated speed rpm : 1055
 guide sleeve travel mm : 8.40
 Tolerance mm : + 0.10

 Rated speed rpm : 300
 guide sleeve travel mm : 1.20
 Tolerance mm : + 0.20

 Rated speed rpm : 500
 guide sleeve travel mm : 4.00
 Tolerance mm : + 0.30

 Rated speed rpm : 1350
 guide sleeve travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever position degree : - 1
 Rated speed rpm : 1170

 Rack travel in mm : 10.10
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure hPa : 700
 Del. quantity cm³/1000 strokes : 186.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 115.0
 tolerance degree : + 4.0

 RATED SPEED
 rack travel mm : 10.10
 Rated speed rpm : 1055
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1145
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever position degree : 66.0
 tolerance degree : + 4.0

 Setting point w/out bumper spring
 Rated speed rpm : 100

 CRT mm min. : > 7.50

 Testing:
 Rated speed rpm : 300
 rack travel mm : 5.30

Tolerance mm : \pm 0.10

Rated speed rpm : 375

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 700

rack travel mm : 11.15

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 8.60

Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280

rack travel mm : 9.35

Tolerance mm : \pm 0.15

Pressure hPa : 340

rack travel mm : 10.55

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 1000

Del. quantity

cm³/1000 strokes : 138.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm³/1000 strokes : 210.0

Tolerance

cm³/1000 strokes : \pm 10.0

Check tolerance

cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.30

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 24.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.11.97
Test oil : ISO 4113

Combination No. : 0 401 876 803

Injection pump
Pump designation : PE6P110A320RS3266
EP type number : 0 411 816 777

Governor
Governor design. : RSV350...1250P0A578
Governor no. : 0 421 833 434

Cust. part No. : 866200-P06 v.10/97

Customer-spec. information

Customer : PENTA
Motor : TWD 630VE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.40
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.00

Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 133.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 5.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 133.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 48.0

Tolerance degree : + 4.0

control lever
position degree : 98.0

Tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.00

Rated speed rpm : 1280

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1320

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1345

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 70.0

tolerance degree : + - 4.0

control lever

position degree : 20.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 480
Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.00
Tolerance mm : + - 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 720
rack travel mm : 2.50
Tolerance mm : + - 0.10

Pressure hPa : 240
rack travel mm : 0.25
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 80.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm3/1000 strokes : 190.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.50
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 046 234

Injection pump
Pump designation : PES6P110A820LS442
EP type number : 0 412 016 060

Governor
Governor design. : RQ300/1100PA327-5
Governor no. : 0 421 801 163

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : 407 STEHEND
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 110
Tolerance l/h : + - 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + - 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check tolerance °NW : + - 0.75

BASIC SETTING

Del. quantity
cm3/1000 strokes : 117.0

Tolerance
cm3/1000 strokes : + - 1.0

Check tolerance
cm3/1000S. : + - 3.5

Spread _____

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 6.10

Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 15.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1153
 guide sleeve travel mm : 7.63
 Tolerance mm : + 0.15

 Rated speed rpm : 300
 guide sleeve travel mm : 1.87
 Tolerance mm : + 0.20

 Rated speed rpm : 1100
 guide sleeve travel mm : 7.00
 Tolerance mm : + 0.10

 Rated speed rpm : 373
 guide sleeve travel mm : 4.84
 Tolerance mm : + 0.10

 Rated speed rpm : 460
 guide sleeve travel mm : 7.00
 Tolerance mm : + 0.10

 Rated speed rpm : 1250
 guide sleeve travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever position degree : - 1
 Rated speed rpm : 600

 Rack travel in mm : 13.50
 Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 117.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 8.0

RATED SPEED

rack travel mm : 10.00
 Rated speed rpm : 1145
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + 15

 rack travel mm : 1.00
 Tolerance mm : + 1.00
 Rated speed rpm : 1300

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100

 CRT mm min. : > 7.50

 Testing:

 Rated speed rpm : 300
 rack travel mm : 6.10
 Tolerance mm : + 0.10

 rack travel mm : 2.00
 Rated speed rpm : 370
 Tolerance 1/min : + 20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.10
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.11.97
Test oil : ISO 4113

Combination No. : 0 402 046 811

Injection pump
Pump designation : PES6P110A320RS3233
EP type number : 0 412 016 728

Governor
Governor design. : RQV275...1175PA833
: -4
Governor no. : 0 421 813 762

Cust. part No. : CCEP 5090C

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 060226D
Power KW : 166.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 19.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.55
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1175
Del. quantity cm³/1000 strokes : 118.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 3.5
Spred
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 7.5

Rated speed rpm : 275
Rack travel in mm : -7.90
Tolerance mm : + 0.10
Del. quantity cm³/1000 strokes : 40.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 5.5
Spred
Tolerance cm³/1000 strokes : 4.5
Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1175
guide sleeve travel mm : 7.00
Tolerance mm : + 0.10
Rated speed rpm : 250
guide sleeve travel mm : 0.50
Tolerance mm : + 0.10
Rated speed rpm : 800

guide sleeve travel mm : 4.80
Tolerance mm : + 0.20
Rated speed rpm : 450
guide sleeve travel mm : 3.20
Tolerance mm : + 0.30

GUIDE SLEEVE POSITION

control lever position degree : - 1
Rated speed rpm : 1430
Rack travel in mm : 13.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 118.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 3.5
Spred
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever position degree : 117.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1245
Tolerance 1/min : + 5

rack travel mm : -9.50
Rated speed rpm : 1420
Tolerance 1/min : + 15

rack travel mm : -13.05
Tolerance mm : + 0.55
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 84.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.90
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm max. : < -5.60

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 700

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -3.80
Tolerance mm : + - 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 440
rack travel mm : -0.90
Tolerance mm : + - 0.20

Pressure hPa : 200
rack travel mm : -2.85
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 114.0
Tolerance
cm3/1000 strokes : + - 2.5
Check tolerance
cm3/1000S. : + - 5.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 52.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 92.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -7.90
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.5
Spread
Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm³/1000s. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 758

Injection pump
Pump designation : PES6P120A720RS3322
EP type number : 0 412 026 764

Governor
Governor design. : RSV650...1250P8A566
Governor no. : 0 421 833 415

Cust. part No. : 87801599

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 131.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 650
 Rack travel in mm : 4.40
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 1.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 131.0
 Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 112.0
 tolerance degree : + 4.0

RATED SPEED

Rated speed rpm : 1330
 Tolerance 1/min : + 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293
 rack travel mm : 9.05

Rated speed rpm : 1325
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1500

Rated speed rpm : 1294
 rack travel mm : 9.05

Rated speed rpm : 1326
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55

Rated speed rpm : 1295
 rack travel mm : 9.05

Rated speed rpm : 1327
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55

Rated speed rpm : 1296
 rack travel mm : 9.05

Rated speed rpm : 1328
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1297
rack travel mm : 9.05

Rated speed rpm : 1329
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1298
rack travel mm : 9.05

Rated speed rpm : 1330
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 3.90
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 770
Tolerance 1/min : + 50

TORQUE CONTROL
Rated speed rpm : 1250
rack travel mm : 10.05
Tolerance mm : + 0.05

Rated speed rpm : 900

rack travel mm : 10.60
Tolerance mm : + 0.10

Rated speed rpm : 1160
rack travel mm : 10.35
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 10.60
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 10.60
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.60
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 560
rack travel mm : 9.80
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 144.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.40
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 759

Injection pump
Pump designation : PES6P120A720RS3322
EP type number : 0 412 026 764

Governor
Governor design. : RSV650...1250P8A567
Governor no. : 0 421 833 416

Cust. part No. : 87801592

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 201.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Check tolerance °NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.65
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 157.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 157.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : + 4.0

RATED SPEED

Rated speed rpm : 1330
Tolerance 1/min : + 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293
rack travel mm : 10.65

Rated speed rpm : 1325
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1500

Rated speed rpm : 1294
rack travel mm : 10.65

Rated speed rpm : 1326
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1295
rack travel mm : 10.65

Rated speed rpm : 1327
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : + - 0.55

Rated speed rpm : 1296
rack travel mm : 10.65

Rated speed rpm : 1328
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1297
rack travel mm : 10.65

Rated speed rpm : 1329
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1298
rack travel mm : 10.65

Rated speed rpm : 1330
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

LOW IDLE

control lever
position degree : 79.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.30
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.80
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 770
Tolerance 1/min : + - 50

TORQUE CONTROL
Rated speed rpm : 1250
rack travel mm : 11.65
Tolerance mm : + - 0.10

Rated speed rpm : 900
rack travel mm : 12.10
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.10
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 490
rack travel mm : 11.05
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.80
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 762

Injection pump
Pump designation : PES6P120A720RS3322
EP type number : 0 412 026 764

Governor
Governor design. : RSV650...1250P8A567
: -1
Governor no. : 0 421 833 422

Cust. part No. : 87801597

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 085

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 105
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Check tolerance °NW : + 0.30

Barrel no. : 1 :

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.70
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 137.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 137.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 111.0
tolerance degree : + 4.0

RATED SPEED

Rated speed rpm : 1330
Tolerance 1/min : + 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293
rack travel mm : 9.65

Rated speed rpm : 1325
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1500

Rated speed rpm : 1294
rack travel mm : 9.65

Rated speed rpm : 1326
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1295
rack travel mm : 9.65

Rated speed rpm : 1327
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1296
rack travel mm : 9.65

Rated speed rpm : 1328
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1297
rack travel mm : 9.65

Rated speed rpm : 1329
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1298
rack travel mm : 9.65

Rated speed rpm : 1330
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 750
Tolerance 1/min : + - 50

TORQUE CONTROL
Rated speed rpm : 1250
rack travel mm : 10.70
Tolerance mm : + - 0.05

Rated speed rpm : 900
rack travel mm : 11.10
Tolerance mm : + - 0.10

Rated speed rpm : 1100
rack travel mm : 10.95
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 11.10
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.10
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.70
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 630
rack travel mm : 10.75
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 150.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650

Rack travel in mm : 4.60
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 768

Injection pump
Pump designation : PES6P120A720RS3322
EP type number : 0 412 026 764

Governor
Governor design. : RSV650...1250P8A567
: -2
Governor no. : 0 421 833 443

Cust. part No. : 87801594

Customer-spec. information
Customer : FNH-GEOTECH
Motor : 7,5l - DI
Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.45
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 153.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + - 6.0
 Spreed
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 650
 Rack travel in mm : 4.80
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 21.0
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000S. : + - 6.0
 Spreed
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + - 0.20
 governor spring pre-tension click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 153.0
 Tolerance cm³/1000 strokes : + - 1.0

Check tolerance cm³/1000S. : + - 6.0
 Spreed
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 109.0
 tolerance degree : + - 4.0

RATED SPEED

Rated speed rpm : 1300
 Tolerance 1/min : + - 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1263
 rack travel mm : 10.45

Rated speed rpm : 1295
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1500

Rated speed rpm : 1264
 rack travel mm : 10.45

Rated speed rpm : 1296
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55

Rated speed rpm : 1265
 rack travel mm : 10.45

Rated speed rpm : 1297
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55

Rated speed rpm : 1266
 rack travel mm : 10.45

Rated speed rpm : 1298
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1267
rack travel mm : 10.45

Rated speed rpm : 1299
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1268
rack travel mm : 10.45

Rated speed rpm : 1300
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.30
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 770
Tolerance 1/min : + 50

TORQUE CONTROL
Rated speed rpm : 1200
rack travel mm : 11.45
Tolerance mm : + 0.05

Rated speed rpm : 900

rack travel mm : 11.80
Tolerance mm : + 0.10

Rated speed rpm : 1100
rack travel mm : 11.60
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 11.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 11.90
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 595
rack travel mm : 11.45
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 650

Rack travel in mm : 4.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 771

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : REV650...1100F8A5E6
: -1
Governor no. : 0 421 833 452

Cust. part No. : 87801591

Customer-spec. information

Customer : FNH-GEOTECH
Power KW : 201.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Check
tolerance °NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 12.35

Tolerance mm	: + 0.05
Del. quantity cm ³ /1000 strokes	: 183.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 6.0
Spred	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0
Rated speed rpm	: 650
Rack travel in mm	: 4.60
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 23.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spred	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0
<hr/>	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
<hr/>	
GUIDE SLEEVE POSITION	
<hr/>	
control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.30
Tolerance mm	: + 0.20
governor spring pre-tension	
click setting x	: 2.50
<hr/>	
FULL LOAD DELIVERY AT FULL LOAD STOP	

Rated speed rpm	: 1075
Aneroid pressure hPa	: 1600
Del. quantity cm ³ /1000 strokes	: 183.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 6.0
Spred	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0
<hr/>	
CONTROL LEVER	
control lever position degree	: 97.0
tolerance degree	: + 4.0
<hr/>	
RATED SPEED	
rack travel mm	: 4.00
Rated speed rpm	: 1165
Tolerance 1/min	: + 15
<hr/>	
ASSEMBLY GOVERNOR SETTING	
Rated speed rpm	: 1121
rack travel mm	: 11.30
Rated speed rpm	: 1152
Tolerance 1/min	: + 5
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1350
Rated speed rpm	: 1122
rack travel mm	: 11.30
Rated speed rpm	: 1153
Tolerance 1/min	: + 5
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1123
rack travel mm	: 11.30
Rated speed rpm	: 1154
Tolerance 1/min	: + 5
rack travel mm	: 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1124
rack travel mm : 11.30

Rated speed rpm : 1155
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1125
rack travel mm : 11.30

Rated speed rpm : 1156
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1126
rack travel mm : 11.30

Rated speed rpm : 1157
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 750

TORQUE CONTROL
Rated speed rpm : 1075
rack travel mm : 12.35
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 13.15
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 13.20
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 13.20
Tolerance mm : + - 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.60
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1060
rack travel mm : 11.80
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100
Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.60
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 787

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV400...1050P0A602
Governor no. : 0 421 833 483

Cust. part No. : 87801595

Customer-spec. information

Customer : FNH-GEOTECH
Motor : EP040B
Power KW : 176.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Check
tolerance °NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 94.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1320

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : + 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093
rack travel mm : 10.20

Rated speed rpm : 1148
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1320

Rated speed rpm : 1094
rack travel mm : 10.20

Rated speed rpm : 1149
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1095
rack travel mm : 10.20

Rated speed rpm : 1150
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1096
rack travel mm : 10.20

Rated speed rpm : 1151
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1097
rack travel mm : 10.20

Rated speed rpm : 1152
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1098
rack travel mm : 10.20

Rated speed rpm : 1153
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 73.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.50
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 5.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 535
Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.25
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 12.50
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 12.50
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.10
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 980
rack travel mm : 11.40
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 788

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV400...1050POA603
Governor no. : 0 421 833 484

Cust. part No. : 87801600

Customer-spec. information
Customer : FNH-GEOTECH
Motor : EP 040 B
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Check tolerance °NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.45
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 136.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 6.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 4.50
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerarice
cm³/1000S. : + - 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 136.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 6.0

Spred
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 76.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1320

rack travel mm : 4.00
Rated speed rpm : 1155
Tolerance 1/min : + - 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093
rack travel mm : 9.45

Rated speed rpm : 1153
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1094
rack travel mm : 9.45

Rated speed rpm : 1154
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1095
rack travel mm : 9.45

Rated speed rpm : 1155
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1096
rack travel mm : 9.45

Rated speed rpm : 1156
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1097
rack travel mm : 9.45

Rated speed rpm : 1157
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1098
rack travel mm : 9.45

Rated speed rpm : 1158
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 97.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 535
Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 10.45
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 11.30
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 11.35
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.30
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.10
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 10.80
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Check hydraulic start locking and
unlocking device with 500...1000 hPa.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 804

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1100P8A566
: -2
Governor no. : 0 421 833 559

Cust. part No. : 87801598

Customer-spec. information

Customer : NH
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

Start of delivery blocking

Check tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 10.80

Tolerance mm : + - 0.05
 Del. quantity cm³/1000 strokes : 143.5
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 6.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 650
 Rack travel in mm : 4.70
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 23.0
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000S. : + - 6.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800

Rack travel in mm : 0.50
 Tolerance mm : + - 0.20

governor spring pre-tension
 click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025
 Aneroid pressure hPa : 1600
 Del. quantity cm³/1000 strokes : 143.5
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 6.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 95.0
 tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 4.00
 Rated speed rpm : 1105
 Tolerance 1/min : + - 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1072
 rack travel mm : 9.80

Rated speed rpm : 1100
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1350

Rated speed rpm : 1073
 rack travel mm : 9.80

Rated speed rpm : 1101
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55

Rated speed rpm : 1074
 rack travel mm : 9.80

Rated speed rpm : 1102
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1075
rack travel mm : 9.80

Rated speed rpm : 1103
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1076
rack travel mm : 9.80

Rated speed rpm : 1104
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

Rated speed rpm : 1077
rack travel mm : 9.80

Rated speed rpm : 1105
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.20
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.70
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 760

TORQUE CONTROL
Rated speed rpm : 1025
rack travel mm : 10.80
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 11.55
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 11.60
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 11.55
Tolerance mm : + - 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.60
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 840
rack travel mm : 10.70
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 167.5
Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.70
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 805

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1100P8A566
: -3
Governor no. : 0 421 833 560

Cust. part No. : 87801593

Customer-spec. information

Customer : NH

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. L/h : 115
Tolerance L/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

Start of delivery blocking

Check tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 11.70
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 172.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.30
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

governor spring
pre-tension
click setting x : 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025

Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 172.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 90.0

tolerance degree : + - 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1058
rack travel mm : 10.70

Rated speed rpm : 1078
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1059
rack travel mm : 10.70

Rated speed rpm : 1079
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1060
rack travel mm : 10.70

Rated speed rpm : 1080
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1061
rack travel mm : 10.70

Rated speed rpm : 1081
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1062
rack travel mm : 10.70

Rated speed rpm : 1082
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1063
rack travel mm : 10.70

Rated speed rpm : 1083
Tolerance 1/min : + - 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 3.80
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.30
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 735

TORQUE CONTROL
Rated speed rpm : 1025
rack travel mm : 11.70
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 12.60
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 12.60
Tolerance mm : + - 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1100
rack travel mm : 11.80
Tolerance mm : + - 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 196.0

Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.30
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 810

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1050P8A566
: -4
Governor no. : 0 421 833 583

Cust. part No. : 87801590

Customer-spec. information

Customer : NH
Motor : EP 040 B
Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4,

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Check
tolerance °NW : + 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.35

Tolerance mm : + 0.05
 Del. quantity cm³/1000 strokes : 183.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 650
 Rack travel in mm : 4.60
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 23.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring pre-tension click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

+ Rated speed rpm : 1025
 + Aneroid pressure hPa : 1600
 + Del. quantity cm³/1000 strokes : 183.0
 + Tolerance cm³/1000 strokes : + 1.0
 + Check tolerance cm³/1000S. : + 6.0
 + Spread
 + Tolerance cm³/1000 strokes : 5.0
 + Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 95.0

ASSEMBLY GOVERNOR SETTING

+ Rated speed rpm : 1067
 + rack travel mm : 11.30
 + Rated speed rpm : 1097
 + Tolerance 1/min : + 5
 + rack travel mm : 4.00
 + rack travel mm : 0.85
 + Tolerance mm : + 0.55
 + Rated speed rpm : 1300

+ Rated speed rpm : 1068
 + rack travel mm : 11.30

+ Rated speed rpm : 1098
 + Tolerance 1/min : + 5
 + rack travel mm : 4.00
 + rack travel mm : 0.85
 + Tolerance mm : + 0.55

+ Rated speed rpm : 1069
 + rack travel mm : 11.30

+ Rated speed rpm : 1099
 + Tolerance 1/min : + 5
 + rack travel mm : 4.00
 + rack travel mm : 0.85
 + Tolerance mm : + 0.55

Rated speed rpm : 1070

rack travel mm : 11.30

Rated speed rpm : 1100

Tolerance 1/min : + 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1071

rack travel mm : 11.30

Rated speed rpm : 1101

Tolerance 1/min : + 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1072

rack travel mm : 11.30

Rated speed rpm : 1102

Tolerance 1/min : + 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : + 0.55

LOW IDLE

control lever position degree : 76.0

Setting point w/out bumper spring

Rated speed rpm : 650

rack travel mm : 4.10

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650

rack travel mm : 4.60

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 750

TORQUE CONTROL

Rated speed rpm : 1025

rack travel mm : 12.35

Tolerance mm : + 0.05

Rated speed rpm : 750

rack travel mm : 13.05

Tolerance mm : + 0.10

Rated speed rpm : 650

rack travel mm : 13.10

Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1600

rack travel mm : 13.10

Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 7.80

Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 980

rack travel mm : 11.60

Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100

Check speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600

Rated speed rpm : 750

Del. quantity

cm³/1000 strokes : 210.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 86.0

Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.60
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97

Test oil : ISO 4113

Combination No. : 0 402 076 816

Injection pump

Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor

Governer design. : RSV650...1100P8A566
: -5

Governer no. : 0 421 833 601

Cust. part No. : 87801596

Customer-spec. information

Customer : NH
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 120
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 3.60
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery blocking

Check
tolerance °NW : + - 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025
 Rack travel in mm : 11.45
 Tolerance mm : + 0.05
 Del. quantity cm³/1000 strokes : 159.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 650
 Rack travel in mm : 4.60
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 23.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring pre-tension click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025
 Aneroid pressure hPa : 1600
 Del. quantity cm³/1000 strokes : 159.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 97.0

RATED SPEED

rack travel mm : 4.00
 Rated speed rpm : 1100
 Tolerance 1/min : + 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067
 rack travel mm : 10.40
 Rated speed rpm : 1097
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1250

Rated speed rpm : 1068
 rack travel mm : 10.40

Rated speed rpm : 1098
 Tolerance 1/min : + 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + 0.55

Rated speed rpm : 1069
 rack travel mm : 10.40

Rated speed rpm : 1099
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1070
rack travel mm : 10.40

Rated speed rpm : 1100
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1071
rack travel mm : 10.40

Rated speed rpm : 1101
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1072
rack travel mm : 10.40

Rated speed rpm : 1102
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever position degree : 79.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 700

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 11.45
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.30
Tolerance mm : + 0.10

Rated speed rpm : 750
rack travel mm : 12.35
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 12.30
Tolerance mm : + 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.80
Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1050
rack travel mm : 11.50
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100

Check speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1600
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 185.0
Tolerance cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 623

Injection pump
Pump designation : PE6P120A320RS7288
: -10
EP type number : 0 412 626 918

Governor
Governer design. : RQV250...900PA1069
: -1
Governer no. : 0 421 814 070

Cust. part No. : 866141 P06 v. 11/97

Customer-spec. information

Customer : PENTA
Motor : TAD 1030/

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 300
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015
Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.45
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.45
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 250

Rack travel in mm : 7.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spred

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 949
guide sleeve
travel mm : 7.39
Tolerance mm : + 0.25

Rated speed rpm : 250

guide sleeve
travel mm : 1.12
Tolerance mm : + 0.25

Rated speed rpm : 657
guide sleeve
travel mm : 5.07
Tolerance mm : + 0.25

Rated speed rpm : 315
guide sleeve
travel mm : 1.98
Tolerance mm : + 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.63
Tolerance mm : + 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 3.17
Tolerance mm : + 0.25

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1150

Rack travel in mm : 9.00
Tolerance mm : + 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : + - 4.0

control lever
position degree : 119.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 12.45
Rated speed rpm : 935
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + - 4.0

control lever
position degree : 24.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 250
rack travel mm : 7.70
Tolerance mm : + - 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.45
Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.45
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 200
rack travel mm : 10.30
Tolerance mm : + - 0.10

Pressure hPa : 1090
rack travel mm : 13.15
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.70
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000s. : + - 5.0
Spred
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000s. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 737

Injection pump
Pump designation : PE6P120A320LS7904
EP type number : 0 412 626 961

Governor
Governor design. : RQV300...1050PA1328K
Governor no. : 0 421 815 546

Cust. part No. : 0422 3933 KY

Customer-spec. information

Customer : KHD
Motor : BF6M1015C
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 230
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 300.00
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1092
guide sleeve
travel mm : 9.72
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 2.74
Tolerance mm : \pm 0.20

Rated speed rpm : 766
guide sleeve
travel mm : 6.78
Tolerance mm : \pm 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.97
Tolerance mm : \pm 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.80
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1700

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.80
Rated speed rpm : 1080
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.81

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : + 0.10

Rated speed rpm : 355

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 11.90
Tolerance mm : + 0.10

Rated speed rpm : 850
rack travel mm : 13.20
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1700
rack travel mm : 13.80
Tolerance mm : + 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 8.40
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 420
rack travel mm : 9.10
Tolerance mm : + 0.20

Pressure hPa : 830
rack travel mm : 11.80
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1700
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 353.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0

Aneroid pressure hPa : -
Rated speed rpm : 400
Del. quantity cm³/1000 strokes : 230.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0
Spread
Tolerance cm³/1000 strokes : 10.0
Check tolerance cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.40
Tolerance mm : + 0.30
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 648 707

Injection pump
Pump designation : PE8P120A320LS7915
EP type number : 0 412 628 929

Governor
Governor design. : RQ300/1150PA1371
Governor no. : 0 421 801 829

Cust. part No. :

Customer-spec. information

Customer : DfI
Motor : DV15TC
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + - 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : + - 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 5.20
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 16.00
Tolerance mm : + - 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery mark

Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 220.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strckes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred
Tolerance
cm³/1000 strckes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1204
guide sleeve

travel mm : 6.35
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve

travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1150
guide sleeve

travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 456

guide sleeve
travel mm : 3.78
Tolerance mm : + 0.10

Rated speed rpm : 600
guide sleeve

travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1380
guide sleeve

travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 220.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 35.0

tolerance degree : + 4.0

control lever
position degree : 96.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1202

Tolerance 1/min : + 8

rack travel mm	:	4.00
Rated speed rpm	:	1290
Tolerance 1/min	:	+ 15
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1350

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

control lever
position degree : 10.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.02

Testing:

Rated speed rpm : 300
 rack travel mm : 5.80
 Tolerance mm : + - 0.10

Rack travel mm : 2.00
 Rated speed rpm : 437
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 14.35
 Tolerance mm : + 0.05

Rated speed rpm : 650
 rack travel mm : 14.35
 Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1500
 rack travel mm : 14.35
 Tolerance mm : + - 0.05

Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	8.15
Tolerance mm	:	± 0.20

2-stage LDA setting

Rated speed rpm : 500
 Pressure hPa : 600
 rack travel mm : 12.40

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	500
rack travel mm	:	11.80
Tolerance mm	:	+ 0.20

Pressure hPa : 250
 rack travel mm : 9.10
 Tolerance mm : + - 0.05

Pressure hPa : 900
 rack travel mm : 13.90
 Tolerance mm : + - 0.20

Pressure hPa : 725
 rack travel mm : 12.90
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 205
Rated speed rpm : < 240

Check
speed 1/min : > 185

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure	:	-
hPa	:	
Rated speed rpm	:	650
Del. quantity	:	
cm ³ /1000 strokes	:	240.0
Tolerance	:	
cm ³ /1000 strokes	:	+ - 3.0
Check tolerance	:	
cm ³ /1000S.	:	+ - 6.0

Aneroid pressure : -
 hPa
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 676 823

Injection pump
Pump designation : PE6P120A320LS7885-1
EP type number : 0 412 626 948

Governor
Governor design. : RSV400...1000P1A589
Governor no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information

Customer : LIEBHERR
Motor : D 9406 TI-E A3
Power KW : 258.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 4.55
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

BASIC SETTING

Rated speed rpm : 890

Rack travel in mm : 13.75
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 265.0

Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 400
 Rack travel in mm : 5.00
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + - 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 890
 Aneroid pressure
 hPa : 1400
 Del. quantity
 cm³/1000 strokes : 265.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 106.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 12.50
 Rated speed rpm : 930
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1005
 Tolerance 1/min : + - 15

rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1200

rack travel mm : 4.00
 Rated speed rpm : 1015
 Tolerance 1/min : + - 15

LOW IDLE

control lever
 position degree : 57
 tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 3.50
 Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 400
 rack travel mm : 5.00
 Tolerance mm : + - 0.10

rack travel mm : 2.00
 Rated speed rpm : 515
 Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 890

rack travel mm : 13.75
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 13.75
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 13.75
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400
rack travel mm : 13.75
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.90
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 870
rack travel mm : 13.40
Tolerance mm : + - 0.05

Pressure hPa : 740
rack travel mm : 12.50
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 280.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : 1400
Rated speed rpm : 700

Del. quantity
cm3/1000 strokes : 272.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 230.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm3/1000 strokes : 220.0
Tolerance
cm3/1000 strokes : + - 15.0
Check tolerance
cm3/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.00
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread

Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 676 8230

Injection pump
Pump designation : PE6P120A320LS7885-1
EP type number : 0 412 626 948

Governor
Governor design. : RSV400...1000P1A589
Governor no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI-E A3
Power KW : 258.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 890

Rack travel in mm : 13.75
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 265.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

 Rated speed rpm : 400
 Rack travel in mm : 5.00
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 26.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spred
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP
 Rated speed rpm : 890
 Aneroid pressure hPa : 1400
 Del. quantity cm³/1000 strokes : 265.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree	:	106.0
RATED SPEED		
rack travel mm	:	12.75
Rated speed rpm	:	930
Tolerance 1/min	:	+ 5
rack travel mm : 0.85		
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1200
rack travel mm : 4.00		
Rated speed rpm	:	1015
Tolerance 1/min	:	+ 15

LOW IDLE

control lever position degree	:	83.0
Setting point w/out bumper spring		

Rated speed rpm	:	400
rack travel mm	:	3.50
Tolerance mm	:	+ 0.10

Testing:

Rated speed rpm	:	400
rack travel mm	:	5.00
Tolerance mm	:	+ 0.10

TORQUE CONTROL

Rated speed rpm	:	890
rack travel mm	:	13.75
Tolerance mm	:	+ 0.05

Rated speed rpm	:	500
rack travel mm	:	13.75
Tolerance mm	:	+ 0.10

Rated speed rpm	:	700
rack travel mm	:	13.75
Tolerance mm	:	+ 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1400
 rack travel mm : 13.75
 Tolerance mm : + - 0.10

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 11.90
 Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 870
 rack travel mm : 13.40
 Tolerance mm : + - 0.05

Pressure hPa : 740
 rack travel mm : 12.50
 Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1400
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 280.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0

Aneroid pressure
 hPa : 1400
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 272.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0

Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.50
 Tolerance mm : + - 0.50
 Del. quantity
 cm³/1000 strokes : 220.0
 Tolerance
 cm³/1000 strokes : + - 10.0
 Check tolerance
 cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 400
 Rack travel in mm : 5.00
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 402 738 800

Injection pump
Pump designation : PES8P130A720/3LS7443
EP type number : 0 412 738 801

Governor
Governor design. : RQV350...900PA1359
Governor no. : 0 421 814 202

Cust. part No. :

Customer-spec. information
Customer : FINCANTIERI
Motor : V1708T2-SPE
Power KW : 815.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 160
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 3.55
Tolerance mm : + - 0.05
Check tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1-2-6-3-4-5-7-8

Phasing : 0-45-90-135-180-225
: -270-315
Tolerance : + - 0.50
Check tolerance °NW : + - 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80
Tolerance mm : + - 0.05

Del. quantity
cm³/1000 strokes : 420.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 5.0

Spreed _____
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.5

 Rated speed rpm : 350
 Rack travel in mm : 4.40
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 25.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 7.0
 Spreed
 Tolerance
 cm³/1000 strokes : 9.5
 Check tolerance
 cm³/1000S. : 13.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958
 guide sleeve
 travel mm : 8.29
 Tolerance mm : + - 0.15
 Rated speed rpm : 350
 guide sleeve
 travel mm : 2.31
 Tolerance mm : + - 0.20
 Rated speed rpm : 690
 guide sleeve
 travel mm : 5.08
 Tolerance mm : + - 0.25
 Rated speed rpm : 1160
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1

Rated speed rpm : 1010
 Rack travel in mm : 13.80
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 900
 Del. quantity
 cm³/1000 strokes : 420.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.5

CONTROL LEVER

control lever
 position degree : 117.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 13.80
 Rated speed rpm : 945
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1065
 Tolerance 1/min : + - 15
 rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1150

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350
rack travel mm : 4.40
Tolerance mm : + 0.10

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 14.85
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 250
rack travel mm : 10.90
Tolerance mm : + 0.20

Pressure hPa : 320
rack travel mm : 12.60
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 319.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 4.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 7.0
Spread
Tolerance
cm³/1000 strokes : 9.5
Check tolerance
cm³/1000S. : 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 637

Injection pump
Pump designation : PES6P120A320RS7449
EP type number : 0 412 726 974

Governor
Governor design. : RQ275/1050PA1372
Governor no. : 0 421 801 830

Cust. part No. :

Customer-spec. information
Customer : RENAULT V.I.
Motor : MI7R062045 B41
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 320
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -1.45
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 193.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 275
Rack travel in mm : -6.80
Tolerance mm : + - 0.10
Del. quantity cm³/1000 strokes : 31.0
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 5.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1129
guide sleeve travel mm : 6.37
Tolerance mm : + - 0.15

Rated speed rpm : 275
guide sleeve travel mm : 1.52
Tolerance mm : + - 0.20

Rated speed rpm : 1050

guide sleeve travel mm : 6.00
Tolerance mm : + - 0.10

Rated speed rpm : 388
guide sleeve travel mm : 4.42
Tolerance mm : + - 0.10

Rated speed rpm : 480
guide sleeve travel mm : 6.00
Tolerance mm : + - 0.10

Rated speed rpm : 1330
guide sleeve travel mm : 11.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + - 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 193.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 273.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1120
Tolerance 1/min : + - 5

rack travel mm : -8.50
Rated speed rpm : 1220
Tolerance 1/min : + 15

rack travel mm : -12.00
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 253.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > -4.00

Testing:

Rated speed rpm : 275
rack travel mm : -6.80
Tolerance mm : + 0.10

rack travel mm : -10.50
Rated speed rpm : 375
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -0.85
Tolerance mm : + 0.15

Pressure hPa : 160
rack travel mm : -1.70
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -6.80

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 31.0

Tolerance

cm³/1000 strokes : + 2.0

Check tolerance

cm³/1000S. : + 5.0

Spred

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 638

Injection pump
Pump designation : PES6P120A320RS7449
EP type number : 0 412 726 974

Governor
Governor design. : RQ275/1050PA1373
Governor no. : 0 421 801 831

Cust. part No. :

Customer-spec. information

Customer : RENAULT V.I.
Motor : MI7R062045 C41
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 4.70
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 20.25
Tolerance mm : + - 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery mark

°NW after s.o.d. : -0.95
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1050

Del. quantity cm³/1000 strokes : 176.0

Tolerance cm³/1000 strokes : \pm 1.0

Check tolerance cm³/1000S. : \pm 4.0

Spred

Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.10
Tolerance mm : \pm 0.10

Del. quantity cm³/1000 strokes : 28.0

Tolerance cm³/1000 strokes : \pm 2.0

Check tolerance cm³/1000S. : \pm 5.0

Spred

Tolerance cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1125
guide sleeve travel mm : 7.06
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve travel mm : 2.38
Tolerance mm : \pm 0.20

Rated speed rpm : 1050
guide sleeve travel mm : 6.70
Tolerance mm : \pm 0.10

Rated speed rpm : 668
guide sleeve travel mm : 6.18
Tolerance mm : \pm 0.10

Rated speed rpm : 377
guide sleeve travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 460
guide sleeve travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1310
guide sleeve travel mm : 11.50
Tolerance mm : \pm 0.50

Rated speed rpm : 874
guide sleeve travel mm : 6.52
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever position degree : 109
Rated speed rpm : 1050

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 176.0
Tolerance cm³/1000 strokes : \pm 1.0
Check tolerance cm³/1000S. : \pm 4.0
Spred
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 275.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -7.70
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

rack travel mm : -11.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 255.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > -4.30

Testing:

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 367
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
rack travel mm : 0.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST**SETTING**

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 280
rack travel mm : 0.65
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -0.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.10
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 639

Injection pump
Pump designation : PES6P120A320RS7359
: -3
EP type number : 0 412 726 975

Governor
Governer design. : RQ275/1050PA1217-2
Governer no. : 0 421 801 832

Cust. part No. : CCEP 5172 66-255

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR062045 J41
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.80
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.45
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm	:	600
Tolerance mm	:	+ - 0.05
Del. quantity cm ³ /1000 strokes	:	285.0
Tolerance cm ³ /1000 strokes	:	+ - 1.0
Check tolerance cm ³ /1000S.	:	+ - 4.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0
	:	
Rated speed rpm	:	275
Rack travel in mm	:	-6.90
Tolerance mm	:	+ - 0.10
Del. quantity cm ³ /1000 strokes	:	27.0
Tolerance cm ³ /1000 strokes	:	+ - 2.0
Check tolerance cm ³ /1000S.	:	+ - 5.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1129
guide sleeve travel mm	:	6.36
Tolerance mm	:	+ - 0.15
	:	
Rated speed rpm	:	275
guide sleeve travel mm	:	1.52
Tolerance mm	:	+ - 0.20
	:	
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00

Tolerance mm	:	+ - 0.10
Rated speed rpm	:	400
guide sleeve travel mm	:	4.82
Tolerance mm	:	+ - 0.10
	:	
Rated speed rpm	:	480
guide sleeve travel mm	:	6.00
Tolerance mm	:	+ - 0.10
	:	
Rated speed rpm	:	1330
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ - 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	600
	:	
Rack travel in mm	:	20.00
Tolerance mm	:	+ - 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	285.0
Tolerance cm ³ /1000 strokes	:	+ - 1.0
Check tolerance cm ³ /1000S.	:	+ - 4.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	275.0
tolerance degree	:	+ - 4.0

RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1115
Tolerance 1/min	:	+ - 15
	:	
rack travel mm	:	-9.40

Rated speed rpm : 1225
Tolerance 1/min : + - 15

rack travel mm : -12.90
Tolerance mm : + - 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 254.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > -4.68

Testing:

Rated speed rpm : 275
rack travel mm : -6.90
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 387
Tolerance 1/min : + - 20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : + - 0.05

Rated speed rpm : 1050
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.85
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 520
rack travel mm : -0.60
Tolerance mm : + - 0.15

Pressure hPa : 240
rack travel mm : -2.20
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 293.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 150.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + - 15.0
Check tolerance
cm3/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -6.90

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 27.0

Tolerance

cm³/1000 strokes : + 2.0

Check tolerance

cm³/1000S. : + 5.0

Spred

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.97

Test oil : ISO 4113

Combination No. : 0 402 746 655

Injection pump

Pump designation : PES6P120A320RS7343

EP type number : 0 412 726 915

Governor

Governer design. : RQV300...1000PA1160
: -1K

Governer no. : 0 421 815 559

Cust. part No. :

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 062356 B41

Power KW : 288.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.50
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 11.00
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -0.40
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity cm³/1000 strokes : 350.0

Tolerance cm³/1000 strokes : \pm 1.0

Check tolerance cm³/1000S. : \pm 4.0

Spread

Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.60
Tolerance mm : \pm 0.10

Del. quantity cm³/1000 strokes : 38.0

Tolerance cm³/1000 strokes : \pm 1.5

Check tolerance cm³/1000S. : \pm 5.0

Spread
Tolerance cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1113
guide sleeve travel mm : 8.82
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve travel mm : 1.29

Tolerance mm : \pm 0.20

Rated speed rpm : 827
guide sleeve travel mm : 5.95
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve travel mm : 3.66
Tolerance mm : \pm 0.25

Rated speed rpm : 1440
guide sleeve travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever position degree : - 1
Rated speed rpm : 1293

Rack travel in mm : 11.80
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure hPa : 1200
Del. quantity cm³/1000 strokes : 350.0
Tolerance cm³/1000 strokes : \pm 1.0
Check tolerance cm³/1000S. : \pm 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 294.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 5
rack travel mm : -8.80

Rated speed rpm : 1205
Tolerance 1/min : + - 15

rack travel mm : -12.30
Tolerance mm : + - 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 250.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > -6.00

Testing:

Rated speed rpm : 300
rack travel mm : -7.60
Tolerance mm : + - 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.45
Tolerance mm : + - 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : + - 0.15

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : + - 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : -3.90

Tolerance mm : + - 0.30

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320
rack travel mm : -2.80
Tolerance mm : + - 0.15

Pressure hPa : 520
rack travel mm : -1.70
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 225

Check
speed 1/min : > 80
Check
speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 381.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 245.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + - 0.75
Del. quantity
cm3/1000 strokes : 185.0

Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.60
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 5.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.11.97
Test oil : ISO 4113

Combination No. : 0 402 795 201

Injection pump
Pump designation : PES5H120/720/3LS1002
EP type number : 0 412 725 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. : 51.11103-7254

Customer-spec. information

Customer : MAN
Motor : D2865LF09

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100

CRT mm	:	13.00	ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Tolerance mm	:	+/- 0.05	
Check tolerance mm	:	+/- 0.10	
Check value (P, R and H pump)			Test with control rod in stop position
Uact V	:	1.700	Engine speed min-1: 60
CRT mm	:	6.15	Amplitude V : 1.4
Tolerance mm	:	+/- 0.25	Tolerance V : +/- 0.6
Check tolerance mm	:	+/- 0.30	Check tolerance V : +/- 1.20
Setting point (M pump)			Engine speed min-1: 600
Uact V	:	3.100	Difference
CRT mm	:	12.50	Amplitude to
Tolerance mm	:	+/- 0.05	Amplitude V : max.1.4
Check tolerance mm	:	+/- 0.10	
Check value (M pump)			
Uact V	:	1.700	(C) INJECTION PUMP WITH POSITIONER
CRT mm	:	5.50	TEST POINT V1
Tolerance mm	:	+/- 0.25	Rated speed rpm : 750
Check tolerance mm	:	+/- 0.30	Uact V : 3.350
Stop position (P, R and H pump)			Prestroke solenoid
Uact V	:	Value with deenergised adjusting magnet and control rod in stop position.	Stroke mm : 10.00
CRT mm	:	0.75	Del. quantity
Tolerance mm	:	+/- 0.25	cm ³ /1000 strokes : 332.0
Check tolerance mm	:	+/- 0.35	Tolerance
Stop position (M pump)			cm ³ /1000 strokes : +/- 1.0
Uact V	:	0,720	Check tolerance
Tolerance Volt	:	+/- 0,065	cm ³ /1000S. : +/- 4.0
CRT mm	:	1,00	Spread
Starting position (M pump)			Tolerance
Uact V	:	4,500	cm ³ /1000 strokes : 5.0
Tolerance Volt	:	+/- 0,115	Check tolerance
CRT mm	:	19,00	cm ³ /1000S. : 9.0
Tolerance mm	:	+/- 0,80	FUEL DELIVERY CHARACTERISTICS
			Rated speed rpm : 1000
			Uact V : 3.290
			Prestroke solenoid
			Stroke mm : 8.00
			Del. quantity
			cm ³ /1000 strokes : 309.0
			Check tolerance
			cm ³ /1000S. : +/- 6.0
			Spread
			Tolerance
			cm ³ /1000 strokes : 8.0
			Check tolerance
			cm ³ /1000S. : 12.0
			Rated speed rpm : 500
			Uact V : 2.900

Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 304.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 65.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 173.0
Check tolerance
cm³/1000S. : + 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 402 846 054

Injection pump
Pump designation : PE6P120A320RS8017
EP type number : 0 412 826 018

Governor
Governor design. : RQV300...1100PA1017
: -1
Governor no. : 0 421 814 023

Cust. part No. : 3826087 P03 v.10/97

Customer-spec. information

Customer : PENTA
Motor : TWD 1030 VE
Power KW : 212.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : +- 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 76.0
Tolerance bar : +- 1.0

Prestroke mm : 4.15
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10

Rack travel in mm : 7.80
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.05
Tolerance mm : +- 0.05

Del. quantity
 cm³/1000 strokes : 205.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 11.0

Rated speed rpm : 300
 Rack travel in mm : 4.40
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : + 2.5
 Check tolerance
 cm³/1000S. : + 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1137
 guide sleeve
 travel mm : 8.19
 Tolerance mm : + 0.25
 Rated speed rpm : 300
 guide sleeve
 travel mm : 1.19
 Tolerance mm : + 0.25
 Rated speed rpm : 816
 guide sleeve
 travel mm : 5.27
 Tolerance mm : + 0.25
 Rated speed rpm : 385
 guide sleeve
 travel mm : 1.98

Tolerance mm : + 0.25
 Rated speed rpm : 435
 guide sleeve
 travel mm : 2.45
 Tolerance mm : + 0.25
 Rated speed rpm : 530
 guide sleeve
 travel mm : 3.11
 Tolerance mm : + 0.25
 Rated speed rpm : 1400
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1250
 Rack travel in mm : 10.00
 Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 205.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 11.0

CONTROL LEVER

control lever
 position degree : 58.0
 tolerance degree : + 4.0
 control lever
 position degree : 114.0
 tolerance degree : + 4.0
 RATED SPEED
 rack travel mm : 10.05

Rated speed rpm : 1125
 Tolerance 1/min : + - 5

 rack travel mm : 4.00
 Rated speed rpm : 1210
 Tolerance 1/min : + - 15

 rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1320

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + - 4.0

 control lever
 position degree : 15.0
 tolerance degree : + - 4.0

 Setting point w/out bumper spring

 Rated speed rpm : 200

 CRT mm min. : > 6.00

Testing:

Rated speed rpm : 300
 rack travel mm : 4.40
 Tolerance mm : + - 0.30

 Rated speed rpm : 330

TORQUE CONTROL
 Rated speed rpm : 750
 rack travel mm : 11.05
 Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

 Rated speed rpm : 500
 Pressure hPa : 1200
 rack travel mm : 11.05
 Tolerance mm : + - 0.05

 Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 7.80

Tolerance mm : + - 0.10

MEASUREMENT

 Rated speed rpm : 500

 Pressure hPa : 680
 rack travel mm : 2.90
 Tolerance mm : + - 0.20

 Pressure hPa : 200
 rack travel mm : 0.25
 Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 132.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0

LOW IDLE

Rated speed rpm : 300

 Rack travel in mm : 4.40
 Tolerance mm : + - 0.30
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : + - 2.5
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.11.97
Test oil : ISO 4113

Combination No. : 0 402 846 083

Injection pump
Pump designation : PE6P120A320RS8052
EP type number : 0 412 826 038

Governor
Governor design. : RQV300...1100PA1248
Governor no. : 0 421 814 165

Cust. part No. : 11031370
: -P02 v.11.97

Customer-spec. information

Customer : VCE
Motor : TD 104 KAE
Power KW : 216.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 11.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 287.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131
guide sleeve

travel mm : 8.39
Tolerance mm : + 0.15

Rated speed rpm : 330
guide sleeve

travel mm : 1.83
Tolerance mm : + 0.20

Rated speed rpm : 1044
guide sleeve

travel mm : 6.97
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve

travel mm : 4.68
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve

travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1194

Rack travel in mm : 10.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Amercid pressure

hPa : 1500

Del. quantity
cm³/1000 strokes : 287.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : + 4.0

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1130
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

control lever
position degree : 11.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : + 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.30
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 660
rack travel mm : 2.50
Tolerance mm : + 0.20

Pressure hPa : 220
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 4.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.11.97
Test oil : ISO 4113

Combination No. : 0 402 946 011

Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021

Governor
Governor design. : RQV275...1250PA1125K
Governor no. : 0 421 815 981

Cust. part No. : CCEP 5140A 66-205

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06.02.26L51
Power KW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 11.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -0.25
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 170.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 41.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1355
guide sleeve
travel mm : 10.10
Tolerance mm : \pm 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.00

Tolerance mm : \pm 0.15

Rated speed rpm : 929
guide sleeve
travel mm : 6.80
Tolerance mm : \pm 0.20

Rated speed rpm : 390
guide sleeve
travel mm : 2.39
Tolerance mm : \pm 0.20

Rated speed rpm : 440
guide sleeve
travel mm : 3.01
Tolerance mm : \pm 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.20

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 10.90
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1330
Tolerance 1/min : + 15

rack travel mm : -8.60
Rated speed rpm : 1470
Tolerance 1/min : + 5

rack travel mm : -12.10
Tolerance mm : + 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 244.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -6.60
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -5.20

Rated speed rpm : 360

TORQUE CONTROL
Rated speed rpm : 1250

Rated speed rpm : 650
rack travel mm : -1.10
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250

Pressure hPa : 1600
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -4.30
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 200
rack travel mm : -3.70
Tolerance mm : + 0.20

Pressure hPa : 360
rack travel mm : -2.60
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -6.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 403 466 123

Injection pump
Pump designation : PES6MW100/120RS1137
: -2
EP type number : 0 413 406 180

Governor
Governor design. : RSV500...1250MW2A319
: -16
Governor no. : 0 420 085 130

Cust. part No. : 3918357

Customer-spec. information

Customer : CUMMINS
Motor : 6 CTA-8.3 L
Power KW : 171.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 500
 Rack travel in mm : 9.00
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 53.5
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 4.5
 Spread
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : + - 0.35
 governor spring
 pre-tension
 click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 132.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 3.0
 Spread
 Tolerance cm³/1000 strokes : 3.5
 Check tolerance cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 97.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 11.60
 Rated speed rpm : 1325
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1365
 Tolerance 1/min : + - 5
 rack travel mm : 1.00
 Tolerance mm : + - 0.70
 Rated speed rpm : 1550
 rack travel mm : 4.00
 Rated speed rpm : 1375
 Tolerance 1/min : + - 15

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : + - 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 500
 rack travel mm : 9.50
 Tolerance mm : + - 0.10
 Rated speed rpm : 100
 CRT mm min. : > 19.00
 Testing:
 Rated speed rpm : 500
 rack travel mm : 9.00
 Tolerance mm : + - 0.10
 rack travel mm : 2.00
 Rated speed rpm : 570
 Tolerance 1/min : + - 30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 13.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 9.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 036 744

Injection pump
Pump designation : PES6P120A720/3LS3255
EP type number : 0 412 026 739

Governor
Governor design. : RQV300...1000PA876
: -12
Governor no. : 0 421 813 897

Cust. part No. : 3-7039

Customer-spec. information

Customer : MAN
Motor : D2866LF05
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.75
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 15.00
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.15
Tolerance mm : + 0.05

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity cm³/1000 strokes : 20.0
Tolerance cm³/1000 strokes : \pm 3.0
Check tolerance cm³/1000S. : \pm 6.0
Speed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 1
Rated speed rpm : 1100
Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever position degree : 302.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 14.10
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever position degree : 258.0
tolerance degree : \pm 4.0
Setting point w/out bumper spring
Rated speed rpm : 200
CRT mm min. : > 6.50
Testing:
Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10
Rated speed rpm : 340

TORQUE CONTROL
Rated speed rpm : 700
rack travel mm : 15.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 15.15
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 8.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING
Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 14.20
Tolerance mm : \pm 0.20

Pressure hPa : 110
rack travel mm : 12.35

Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200
Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

Aneroid pressure

hPa : -
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 94.0

Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

Spread
Tolerance
cm³/1000 strokes : 10.0

Aneroid pressure

hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 139.0

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 795 202

Injection pump
Pump designation : PES5H120/720/3LS1002
: -1
EP type number : 0 412 725 202

Governor
Governer design. : RE33
Governer no. : 0 421 890 362

Cust. part No. : 51.11103-7408

Customer-spec. information

Customer : MAN
Motor : D 2865 LUH 07
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet Line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0.720
Tolerance Volt : +/- 0.065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 312.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 795 203

Injection pump
Pump designation : PES5H120/720/3LS1004
EP type number : 0 412 725 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7476

Customer-spec. information

Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00
Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 326.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 306.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 795 204

Injection pump
Pump designation : PES5H120/720/3LS1004
: -1
EP type number : 0 412 725 204

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7538

Customer-spec. information

Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : +- 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 10.00
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.10
Check
tolerance °NW : +- 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0.720
Tolerance Volt : +/- 0.065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity cm³/1000 strokes : 326.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Speed
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity cm³/1000 strokes : 306.0
Tolerance cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 795 205

Injection pump
Pump designation : PES5H120/720/3LS1002
: -2
EP type number : 0 412 725 205

Governor
Governor design. : RE33
Governor no. : 0 421 890 362

Cust. part No. : 51.11103-7540

Customer-spec. information

Customer : MAN
Motor : D 2865 LUH 07
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00
Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity cm³/1000 strokes : 332.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity cm³/1000 strokes : 312.0
Tolerance cm³/1000 strokes : +/- 4.0

Check tolerance : +
cm³/1000s. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000s. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000s. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 042

Injection pump
Pump designation : PES6H120/320RS26
EP type number : 0 412 726 014

Governor
Governor design. : RE36
Governor no. : 0 421 890 374

Cust. part No. : 8192940 P02 v.10/97

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : D7C EURO II
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 8.00
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.30
Check
tolerance °NW : + - 0.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check tolerance mm : +/- 0.10

Check value (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.30

Setting point (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check tolerance mm : +/- 0.10

Check value (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.30

Stop position (P, R and H pump)

Uact V : Value with deenergised adjusting magnet and control rod in stop position.
 CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check tolerance mm : +/- 0.35

Stop position (M pump)
 Uact V : 0,720
 Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position (M pump)

Uact V : 4,500
 Tolerance Volt : +/- 0,115
 CRT mm : 19,00
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference Amplitude to Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660
 Uact V : 3.000
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity cm³/1000 strokes : 308.0
 Tolerance cm³/1000 strokes : +/- 1.0
 Check tolerance cm³/1000S. : +/- 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 11.0
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.670
 Tolerance Volt : +/- 0.060
 Check tolerance Volt : +/- 0.060
 Prestroke solenoid
 Stroke mm : 5.30
 Del. quantity cm³/1000 strokes : 16.0
 Tolerance cm³/1000 strokes : +/- 2.0
 Spread

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 202

Injection pump
Pump designation : PES6H120/720/3LS1005
EP type number : 0 412 726 202

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7477

Customer-spec. information

Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : +- 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 10.00
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.10
Check
tolerance °NW : +- 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 328.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 308.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 203

Injection pump
Pump designation : PES6H120/720/3LS1006
EP type number : 0 412 726 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 365

Cust. part No. : 51.11103-7479

Customer-spec. information

Customer : MAN
Motor : D 2866 LUH 21
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet Line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 10.00
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery blocking

Tolerance : + - 0.10
Check
tolerance °NW : + - 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00
Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 312.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 204

Injection pump
Pump designation : PES6H120/720/3LS1005
: -1
EP type number : 0 412 726 204

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7539

Customer-spec. information

Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + - 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 10.00
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery blocking

Tolerance : + - 0.10
Check
tolerance °NW : + - 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity cm³/1000 strokes : 328.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity cm³/1000 strokes : 308.0
Tolerance cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97
Test oil : ISO 4113

Combination No. : 0 402 796 205

Injection pump
Pump designation : PES6H120/720/3LS1006
: -1
EP type number : 0 412 726 205

Governor
Governor design. : RE33
Governor no. : 0 421 890 365

Cust. part No. : 51.11103-7541

Customer-spec. information

Customer : MAN
Motor : D 2866 LUH 21
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.50

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity cm³/1000 strokes : 332.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread Tolerance
cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity cm³/1000 strokes : 312.0
Tolerance cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000s. : + - 8.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000s. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000s. : + - 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 400 466 086

Injection pump
Pump designation : PES6A75D410/3RS1326
EP type number : 0 410 476 977

Governor
Governor design. : RSV325...900A7C602L
Governor no. : 0 420 232 320

Cust. part No. :

Customer-spec. information

Customer : KHD
Motor : F6L912

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 10.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.0

Spread

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 325

Rack travel in mm : 7.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : + - 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 44.0
 Tolerance
 cm³/1000 strokes : + - 0.5
 Check tolerance
 cm³/1000S. : + - 2.0
 Spread
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.5

CONTROL LEVER

control lever
 position degree : 54.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 9.20
 Rated speed rpm : 925
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 960
 Tolerance 1/min : + - 15

rack travel mm : 1.00
 Tolerance mm : + - 0.70
 Rated speed rpm : 1050
 rack travel mm : 4.00
 Rated speed rpm : 970
 Tolerance 1/min : + - 15

LOW IDLE

control lever
 position degree : 25.0
 tolerance degree : + - 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 325
 rack travel mm : 7.70
 Tolerance mm : + - 0.10
 Rated speed rpm : 100
 CRT mm min. : > 19.50
 Testing:
 Rated speed rpm : 325
 rack travel mm : 7.20
 Tolerance mm : + - 0.10
 rack travel mm : 2.00
 Rated speed rpm : 430
 Tolerance 1/min : + - 30

TORQUE CONTROL
 Rated speed rpm : 880
 rack travel mm : 10.25
 Tolerance mm : + - 0.05
 Rated speed rpm : 500
 rack travel mm : 10.30
 Tolerance mm : + - 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.20

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 12.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 4.5

Spred

Tolerance

cm³/1000 strokes : 2.0

Check tolerance

cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.97
Test oil : ISO 4113

Combination No. : 0 400 876 198

Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961

Governor
Governor design. : RSV300...1150A8C616D
: L
Governor no. : 0 420 232 323

Cust. part No. :

Customer-spec. information

Customer : KHD
Motor : F6L413FR
Power KW : 140.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 1.95
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance "NW" : + 0.75

BASIC SETTING

Rated speed rpm : 1140

Rack travel in mm : 10.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 99.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.50
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

governor spring
pre-tension
click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1140
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 9.00
Rated speed rpm : 1185
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : + - 15

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1410

rack travel mm : 4.00
Rated speed rpm : 1265
Tolerance 1/min : + - 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : + - 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 565
Tolerance 1/min : + - 30

TORQUE CONTROL

Dimension a mm : 0.40
Rated speed rpm : 1140
rack travel mm : 10.05
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 10.45
Tolerance mm : + - 0.05

Rated speed rpm : 750
rack travel mm : 10.25
Tolerance mm : + - 0.05

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.00
Tolerance mm : + - 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.50
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spread

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 9 400 030 607

Injection pump
Pump designation : PES4A85D320LS2820
EP type number : 9 410 037 186

Governor
Governor design. : RSV300...1200A2C2123
: -1R
Governor no. : 9 420 034 351

Cust. part No. : SIMPSONS

Customer-spec. information
Motor : S433

TEST BENCH REQUIREMENTS

Inlet line : 1.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.35
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3-4-2

Phasing : 0-90-270-360
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 10.50
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 65.0

Tolerance cm³/1000 strokes : + 0.5

Check tolerance cm³/1000s. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 4.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 1.5

Spred

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 65.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spred
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 49.0
tolerance degree : + 4.0

control lever
position degree : 99.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1265
Tolerance 1/min : + 5

rack travel mm : 5.50
Rated speed rpm : 1295
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1510

rack travel mm : 5.50
Rated speed rpm : 1310
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

control lever
position degree : 21.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.50

Tolerance mm : + - 0.10

rack travel mm : 2.00

Rated speed rpm : 590

Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 1200

rack travel mm : 10.50

Tolerance mm : + - 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 14.25

Tolerance mm : + - 0.25

Tolerance

cm³/1000 strokes : + - 7.5

Check tolerance

cm³/1000S. : + - 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.50

Tolerance mm : + - 0.10

Del. quantity

cm³/1000 strokes : 4.0

Tolerance

cm³/1000 strokes : + - 1.0

Check tolerance

cm³/1000S. : + - 1.5

Spred

Tolerance

cm³/1000 strokes : 2.0

Check tolerance

cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.97
Test oil : ISO 4113

Combination No. : 0 402 736 875

Injection pump
Pump designation : PES6P120A120RS7352
EP type number : 0 412 726 923

Governor
Governor design. : RQV350...1000PA1185K
Governor no. : 0 421 815 446

Cust. part No. : 3928169

Customer-spec. information

Customer : CDC
Motor : 6CTA-A
Power KW : 205.1

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 5.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 15.15
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 235.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 375
 Rack travel in mm : 6.80
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 27.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure hPa : 1200
 Del. quantity cm³/1000 strokes : 235.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 118.0
 tolerance degree : + 6.0
 RATED SPEED
 rack travel mm : 13.50
 Rated speed rpm : 1155
 Tolerance 1/min : + 15
 rack travel mm : 8.00
 Rated speed rpm : 1245
 Tolerance 1/min : + 5
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever position degree : 71.0
 tolerance degree : + 6.0
 Control lever difference
 Grad : 47.0
 tolerance degree : + 6.0
 Setting point w/out bumper spring

Rated speed rpm : 275
 CRT mm min. : > 8.20

Testing:

Rated speed rpm : 375
 rack travel mm : 6.80
 Tolerance mm : + 0.10
 Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 15.15
 Tolerance mm : + 0.05
 Rated speed rpm : 650
 rack travel mm : 13.70
 Tolerance mm : + 0.20
 Rated speed rpm : 1100

rack travel mm : 14.60
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 9.90
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1000
Pressure hPa : 825
rack travel mm : 14.10
Tolerance mm : + 0.20

Pressure hPa : 370
rack travel mm : 11.45
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check speed 1/min : > 80
Check speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm3/1000 strokes : 210.5
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spred
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 103.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 180.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000S. : + 25.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 6.80
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 27.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 5.0
Spred
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.97
Test oil : ISO 4113

Combination No. : 0 402 736 906

Injection pump
Pump designation : PES6P120A120RS7416
EP type number : 0 412 726 959

Governor
Governor design. : RQV400...1250PA1060
: -4K
Governor no. : 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information

Customer : CDC
Motor : 6BTA-A
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 6.25
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 5.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329
guide sleeve
travel mm : 7.83
Tolerance mm : + - 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.44
Tolerance mm : + - 0.20

Rated speed rpm : 939
guide sleeve
travel mm : 5.18
Tolerance mm : + - 0.25

Rated speed rpm : 640
guide sleeve
travel mm : 3.56

Tolerance mm : + - 0.25

Rated speed rpm : 1690

guide sleeve

travel mm : 11.50

Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever

position degree : VH

Rated speed rpm : 1390

Rack travel in mm : 12.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 160.5

Tolerance

cm³/1000 strokes : + - 1.0

Check tolerance

cm³/1000S. : + - 4.0

Spred

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 117.0

tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1325

Tolerance 1/min : + - 15

rack travel mm : 4.00

Rated speed rpm : 1475

Tolerance 1/min : + - 5

rack travel mm : 0.50

Tolerance mm : + - 0.50

Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + - 4.0

Control lever difference
Grad : 46.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420
rack travel mm : 6.00
Tolerance mm : + - 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.65
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 11.85
Tolerance mm : + - 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : + - 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 375
rack travel mm : 12.70
Tolerance mm : + - 0.30

Pressure hPa : 260
rack travel mm : 11.60
Tolerance mm : + - 0.20

Start interlock

Rated speed rpm : > 200
Rated speed rpm : < 340

Check
speed 1/min : > 190
Check
speed 1/min : < 360

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 107.5
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + - 20.0

Check tolerance
cm³/1000s. : + 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 15.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000s. : + 5.0

Spred

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.97
Test oil : ISO 4113

Combination No. : 0 402 776 820

Injection pump
Pump designation : PES6P120A720RS7382
EP type number : 0 412 726 943

Governor
Governer design. : RSV400...1100POA547
: -6
Governer no. : 0 421 833 488

Cust. part No. : RE501785

Customer-spec. information

Customer : DEERE
Motor : 6081 AF001
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

°NW after s.o.d. : 7.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80
 Tolerance mm : + - 0.05
 Del. quantity cm³/1000 strokes : 198.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

 Rated speed rpm : 400
 Rack travel in mm : 5.85
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 28.5
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000S. : + - 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION
 control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + - 0.20
 governor spring
 pre-tension
 click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure hPa : 1400
 Del. quantity cm³/1000 strokes : 198.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 95.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 10.80
 Rated speed rpm : 1170
 Tolerance 1/min : + - 5

 rack travel mm : 4.00
 Rated speed rpm : 1225
 Tolerance 1/min : + - 5

 rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1300

 rack travel mm : 4.00
 Rated speed rpm : 1230
 Tolerance 1/min : + - 15

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + - 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 400
 rack travel mm : 5.35
 Tolerance mm : + - 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.85
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.80
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 12.40
Tolerance mm : + - 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.75
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 880
rack travel mm : 11.50
Tolerance mm : + - 0.20

Pressure hPa : 450
rack travel mm : 9.70
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 211.0
Tolerance
cm3/1000 strokes : + - 3.0

Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 93.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm3/1000 strokes : 105.0
Tolerance
cm3/1000 strokes : + - 20.0
Check tolerance
cm3/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.85
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.97
Test oil : ISO 4113

Combination No. : 0 402 776 825

Injection pump
Pump designation : PES6P120A720RS7382
EP type number : 0 412 726 943

Governor
Governor design. : RSV400...1100P0A574
: -7
Governor no. : 0 421 833 496

Cust. part No. : RE501786

Customer-spec. information

Customer : DEERE
Motor : 6081 AF001
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 7.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80
 Tolerance mm : + - 0.05
 Del. quantity cm³/1000 strokes : 198.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

 Rated speed rpm : 400
 Rack travel in mm : 5.85
 Tolerance mm : + - 0.10
 Del. quantity cm³/1000 strokes : 28.5
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000S. : + - 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + - 0.20
 governor spring
 pre-tension
 click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure hPa : 1400
 Del. quantity cm³/1000 strokes : 198.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 95.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 10.80
 Rated speed rpm : 1170
 Tolerance 1/min : + - 5

 rack travel mm : 4.00
 Rated speed rpm : 1225
 Tolerance 1/min : + - 5

 rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1300

 rack travel mm : 4.00
 Rated speed rpm : 1230
 Tolerance 1/min : + - 15

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + - 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 400
 rack travel mm : 5.35
 Tolerance mm : + - 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.85
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.80
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 12.40
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.75
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 880
rack travel mm : 11.50
Tolerance mm : + - 0.20

Pressure hPa : 450
rack travel mm : 9.70
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 211.0
Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : + - 20.0
Check tolerance
cm³/1000S. : + - 25.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.85
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.97
Test oil : ISO 4113

Combination No. : 0 402 996 311

Injection pump
Pump designation : PES6P120A720RS8512
: -4
EP type number : 0 412 926 214

Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information

Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 3 413 359 008

Inlet press. bar : 3.0
Tolerance bar : +- 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : +- 1.0

Prestroke mm : 4.20
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 12.00
Tolerance mm : +- 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 7.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Spread

Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

Rated speed rpm : 450
Uact V : 1.310
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 325
Rated speed rpm : 325
Uact V : 1.310
Uact V : 1.310
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.070
Del. quantity
cm³/1000 strokes : 33.0
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Check tolerance
cm³/1000S. : 14.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : + 19.0
Check tolerance
cm³/1000S. : + 22.0
Spread
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 401 846 993

Injection pump
Pump designation : PE6P110A720RS3348
EP type number : 0 411 816 797

Governor
Governor design. : RQV250...1200PA413
: -8
Governor no. : 0 421 814 147

Cust. part No. : 612.60.03.0217

Customer-spec. information

Customer : SNF
Motor : WD612.36
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 210
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015
Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.65
Tolerance mm : + 0.50
Check
tolerance mm : + 0.10

Rack travel in mm : 14.30
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
 cm³/1000 strokes : + - 1.0

 Check tolerance
 cm³/1000S. : + - 4.0

 Spread

 Tolerance
 cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5

 Rated speed rpm : 250

 Rack travel in mm : 5.00
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1257
 guide sleeve
 travel mm : 7.36
 Tolerance mm : + - 0.15

 Rated speed rpm : 250
 guide sleeve
 travel mm : 0.44
 Tolerance mm : + - 0.20

 Rated speed rpm : 1080
 guide sleeve
 travel mm : 6.04
 Tolerance mm : + - 0.25

 Rated speed rpm : 740
 guide sleeve
 travel mm : 4.26
 Tolerance mm : + - 0.25

 Rated speed rpm : 1458

guide sleeve
 travel mm : 10.00
 Tolerance mm : + - 0.25

 Rated speed rpm : 1570
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1390

Rack travel in mm : 12.80
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 145.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 103.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 13.30
 Rated speed rpm : 1245
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1375
 Tolerance 1/min : + - 15

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 250
rack travel mm : 5.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 360
Tolerance 1/min : + 20

TORQUE CONTROL
Rated speed rpm : 1200
rack travel mm : 14.30
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 14.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 14.30
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.80
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 320
rack travel mm : 13.30
Tolerance mm : + 0.05

Pressure hPa : 410
rack travel mm : 13.80
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 139.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread

Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1370
Governor no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information

Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.03
Check
tolerance mm : + 0.10

Rack travel in mm : 12.25
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 149.5
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 325
 Rack travel in mm : 4.40
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 26.0
 Tolerance cm³/1000 strokes : + 2.5
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1292
 guide sleeve travel mm : 6.37
 Tolerance mm : + 0.15
 Rated speed rpm : 325
 guide sleeve travel mm : 1.99
 Tolerance mm : + 0.20
 Rated speed rpm : 1000
 guide sleeve travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 426

guide sleeve travel mm : 3.48
 Tolerance mm : + 0.10
 Rated speed rpm : 590
 guide sleeve travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 1460
 guide sleeve travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP
 Rated speed rpm : 1000
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 149.5
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever position degree : 94.0
 tolerance degree : + 4.0

RATED SPEED
 rack travel mm : 11.25
 Rated speed rpm : 1290
 Tolerance 1/min : + 5
 Check
 speed 1/min : + 10
 rack travel mm : 4.00
 Rated speed rpm : 1365
 Tolerance 1/min : + 15
 Check
 speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 385
Tolerance 1/min : + - 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : + - 0.05

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 12.25
Tolerance mm : + - 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 6.80
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : + - 0.05

Pressure hPa : 220
rack travel mm : 8.10
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.40
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 2.5
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.97
Test oil : ISO 4113

Combination No. : 0 402 066 712

Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784

Governor
Governor design. : RSV475...1200P2A675
Governor no. : 0 421 833 594

Cust. part No. : 3283573

Customer-spec. information

Customer : CDC
Motor : 6BTA-590 ELITE
Power KW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 100
Tolerance l/h : + - 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 2.85
Tolerance mm : + - 0.05
Check tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check tolerance °NW : + - 0.75

Start of delivery blocking

*NW after s.o.d. : 7.75
Tolerance : + - 0.50
Check tolerance °NW : + - 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.30
 Tolerance mm : + 0.05
 Del. quantity cm³/1000 strokes : 140.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.0
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

Rated speed rpm : 485
 Rack travel in mm : 5.30
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 21.0
 Tolerance cm³/1000 strokes : + 2.0
 Check tolerance cm³/1000S. : + 4.5
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP
 Rated speed rpm : 1200
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 140.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.0
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 104.0
 tolerance degree : + 4.0
 RATED SPEED
 rack travel mm : 10.30
 Rated speed rpm : 1265
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1345
 Tolerance 1/min : + 15
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1475
 rack travel mm : 4.00
 Rated speed rpm : 1355
 Tolerance 1/min : + 15

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 485
 rack travel mm : 4.80
 Tolerance mm : + 0.10

Testing:

Rated speed rpm : 485
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 605
Tolerance 1/min : \pm 30

TORQUE CONTROL
Rated speed rpm : 1200
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 10.90
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 9.55
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 157.0

Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 97.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm3/1000 strokes : 170.0
Tolerance
cm3/1000 strokes : \pm 20.0
Check tolerance
cm3/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 485
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 03.12.97
Test oil : ISO 4113

Combination No. : 0 402 074 700A

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information

Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 13.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 203.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 3.5

 Spread

 Tolerance
 cm³/1000 strokes : 4.0

 Check tolerance
 cm³/1000S. : 7.5

 Rated speed rpm : 500

 Rack travel in mm : 4.60
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 24.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.5
 Spread

 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

 governor spring
 pre-tension
 click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 203.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spread

 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 99.0
 tolerance degree : + 4.0

 RATED SPEED
 rack travel mm : 12.85
 Rated speed rpm : 920
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 980
 Tolerance 1/min : + 15

 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1200

 rack travel mm : 4.00
 Rated speed rpm : 1000
 Tolerance 1/min : + 15

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + 4.0

 Setting point w/out bumper spring

 Rated speed rpm : 500
 rack travel mm : 2.80
 Tolerance mm : + 0.10

 Testing:

 Rated speed rpm : 500
 rack travel mm : 4.60
 Tolerance mm : + 0.10

 rack travel mm : 2.00
 Rated speed rpm : 595
 Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 880
rack travel mm : 13.85
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 13.90
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 13.90
Tolerance mm : + - 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST**

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.25
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 830
rack travel mm : 13.20
Tolerance mm : + - 0.05

Pressure hPa : 750
rack travel mm : 12.10
Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 216.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 4.60
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 659

Injection pump
Pump designation : PE6P120A720RS7283-1
EP type number : 0 412 626 945

Governor
Governor design. : RQV300...1100PA1061
: -2K
Governor no. : 0 421 815 465

Cust. part No. : 615.60.08.0304

Customer-spec. information

Customer : SNF
Motor : WD615.50
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 14.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 244.0

Tolerance cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0

Spread

Tolerance cm³/1000 strokes : 6.0

Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30

Tolerance mm : + 0.10

Del. quantity cm³/1000 strokes : 27.5

Tolerance cm³/1000 strokes : + 3.0

Check tolerance cm³/1000S. : + 6.0

Spred

Tolerance cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1156

guide sleeve

travel mm : 10.32

Tolerance mm : + 0.25

Rated speed rpm : 300

guide sleeve

travel mm : 1.64

Tolerance mm : + 0.25

Rated speed rpm : 817

guide sleeve

travel mm : 6.93

Tolerance mm : + 0.25

Rated speed rpm : 314

guide sleeve

travel mm : 1.82

Tolerance mm : + 0.25

Rated speed rpm : 364

guide sleeve

travel mm : 2.49

Tolerance mm : + 0.25

Rated speed rpm : 480

guide sleeve

travel mm : 3.56

Tolerance mm : + 0.25

Rated speed rpm : 1390

guide sleeve

travel mm : 13.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1230

Rack travel in mm : 12.30

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 244.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Spred

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 119.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1145

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1255

Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + - 0.75
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.10

Rated speed rpm : 314

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.30
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : + - 0.10

Rated speed rpm : 900
rack travel mm : 12.90
Tolerance mm : + - 0.15

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : + - 0.05

Rated speed rpm : 1100

Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 500
rack travel mm : 11.80
Tolerance mm : + - 0.10

Pressure hPa : 700
rack travel mm : 12.75
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 223.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000s. : + 24.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 27.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 648 705

Injection pump
Pump designation : PE8P120A320LS7913
EP type number : 0 412 628 928

Governor
Governor design. : RQV350...1050PA1358
Governor no. : 0 421 814 201

Cust. part No. : 0270742402

Customer-spec. information

Customer : MB-NFZ
Motor : OM442LA Euromot
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 5.25
Tolerance mm : +- 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : +- 0.10
Check tolerance °NW : +- 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : +- 0.05

Del. quantity
 cm³/1000 strokes : 227.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 350
 Rack travel in mm : 5.30
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1097
 guide sleeve
 travel mm : 7.85
 Tolerance mm : + - 0.15
 Rated speed rpm : 350
 guide sleeve
 travel mm : 1.48
 Tolerance mm : + - 0.20
 Rated speed rpm : 900
 guide sleeve
 travel mm : 5.69
 Tolerance mm : + - 0.25
 Rated speed rpm : 580
 guide sleeve
 travel mm : 3.62

Tolerance mm : + - 0.25
 Rated speed rpm : 1204
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + - 0.25
 Rated speed rpm : 1300
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1150
 Rack travel in mm : 13.05
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 227.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 117.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 13.40
 Rated speed rpm : 1085
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1175
 Tolerance 1/min : + - 15
 rack travel mm : 0.50
 Tolerance mm : + - 0.50

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.60

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : + - 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : + - 0.05

Rated speed rpm : 600
rack travel mm : 14.70
Tolerance mm : + - 0.10

Rated speed rpm : 850
rack travel mm : 14.55
Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 3.10
Tolerance mm : + - 0.20

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 250

rack travel mm : 0.35
Tolerance mm : + - 0.05

Pressure hPa : 450
rack travel mm : 2.25
Tolerance mm : + - 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 248.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

REDUCED QUANTITY

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 648 706

Injection pump
Pump designation : PE8P120A320LS7830
EP type number : 0 412 628 844

Governor
Gouverner design. : RQ350...600/1150PA13
: 62
Gouverner no. : 0 421 801 826

Cust. part No. : 0280744002

Customer-spec. information

Customer : MTU
Motor : 8V183
Power KW : 441.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 175
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225
: -270-315
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 312.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 350
Rack travel in mm	: 4.00
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 19.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spred	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1208
guide sleeve travel mm	: 7.54
Tolerance mm	: + 0.15
Rated speed rpm	: 350
guide sleeve travel mm	: 3.25
Tolerance mm	: + 0.20
Rated speed rpm	: 1150
guide sleeve travel mm	: 7.20
Tolerance mm	: + 0.10
Rated speed rpm	: 685
guide sleeve travel mm	: 7.05
Tolerance mm	: + 0.10
Rated speed rpm	: 507
guide sleeve travel mm	: 5.26
Tolerance mm	: + 0.10
Rated speed rpm	: 1450

guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50
Rated speed rpm	: 748
guide sleeve travel mm	: 7.15
Tolerance mm	: + 0.10

GUIDE SLEEVE POSITION

control lever position degree	: 105
Rated speed rpm	: 850
Rack travel in mm	: 18.00
Tolerance mm	: + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: 2000
Del. quantity cm ³ /1000 strokes	: 312.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spred	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 101.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 13.80
Rated speed rpm	: 1195
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1330
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1400

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350
rack travel mm : 4.00
Tolerance mm : + 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.85
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 14.85
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

Rated speed rpm : 500
Pressure hPa : 400
rack travel mm : 1.20
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1200
rack travel mm : 5.40
Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 260

Rated speed rpm : < 280

Check
speed 1/min : > 250
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 309.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 330.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spred
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 01.12.97
Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RQV350...1050PA1318
Governor no. : 0 421 814 185

Cust. part No. : 0270746302

Customer-spec. information

Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 272.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106

guide sleeve
travel mm : 8.02
Tolerance mm : + 0.15

Rated speed rpm : 350

guide sleeve
travel mm : 1.48
Tolerance mm : + 0.20

Rated speed rpm : 900

guide sleeve
travel mm : 5.69
Tolerance mm : + 0.25

Rated speed rpm : 580

guide sleeve
travel mm : 3.62
Tolerance mm : + 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.00

Tolerance mm : + 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1174

Rack travel in mm : 11.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1800

Del. quantity
cm³/1000 strokes : 272.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.30
Rated speed rpm : 1095

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1190

Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1300

LOW IDLE

control lever position degree : 64.0
tolerance degree : + - 4.0

Setting point w/out bumper spring
Rated speed rpm : 250

CRT mm min. : > 7.00

Testing:
Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : + - 0.10

Rated speed rpm : 450

TORQUE CONTROL
Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING
Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT
Pressure hPa : 700
rack travel mm : 4.80
Tolerance mm : + - 0.20

Pressure hPa : 180
rack travel mm : 0.40
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1800
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 274.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 140.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0

REDUCED QUANTITY

Aneroid pressure hPa : 1800
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 206.0
Tolerance cm³/1000 strokes : + - 1.5
Check tolerance cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 270.0
Tolerance cm³/1000 strokes : + - 10.0
Check tolerance cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 19.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Spred

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 10.0

End of test specification sheet